

SIXTIETH ANNUAL REPORT  
*of the* BOARD OF TRUSTEES *of the*  
OHIO STATE UNIVERSITY

TO THE GOVERNOR OF OHIO

FOR THE YEAR ENDING

JUNE 30, 1930

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THE OHIO STATE UNIVERSITY  
COLUMBUS, OHIO

SIXTEENTH ANNUAL REPORT  
OF THE BOARD OF TRUSTEES OF THE

# OHIO STATE UNIVERSITY

TO THE GOVERNOR OF OHIO  
THE OHIO STATE UNIVERSITY

HONORABLE MYERS Y. COOPER,

*Governor of Ohio  
Columbus, Ohio*

MY DEAR SIR:

I have the honor to present to you the annual report of the Board of Trustees of the Ohio State University for the year ending June 30, 1930, as required by law.

Yours very truly,

JULIUS F. STONE,  
*Chairman Board of Trustees.*

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THE OHIO STATE UNIVERSITY  
COLUMBUS, OHIO



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## ANNUAL REPORT OF THE PRESIDENT

HONORABLE JULIUS F. STONE,  
*Chairman of the Board of Trustees,  
The Ohio State University.*

DEAR SIR:

I have the honor to present through you to the Board of Trustees of the Ohio State University for transmission to the Governor of Ohio, as required by law, the Sixtieth Annual Report of the Ohio State University for the year ending June 30, 1930.

The extracts from the reports of the several colleges will appear hereinafter, as usual, and the opening pages will, as usual, contain a summary review of the progress of the University and the chief aims pursued in its activities.

### FACULTY CHANGES DURING THE YEAR

Professor William T. Magruder retired from the chairmanship of the Department of Mechanical Engineering after thirty-four years of service in that capacity. During his chairmanship the department came from a small organization to a very large group of teachers with much enlarged equipment. As the University has grown, a strong effort has been made to carry on the growth of the Department of Mechanical Engineering in a corresponding fashion, and Professor Magruder has at all times made a most intelligent presentation of the needs of the department; and when they have been met so far as possible, the activities of the department have been correspondingly enlarged. All of this activity has kept reasonable pace with developments throughout the University and throughout the educational world with respect to mechanical engineering. Professor Magruder's service as chairman of this department has been a most constructive and progressive one. He is continuing as a professor of Mechanical Engineering, relieved of the large responsibilities of the chairmanship.

Professor Franklin W. Marquis has succeeded Professor Magruder as chairman of this department. He has been a professor in the department for a number of years and brings to the new post of responsibility both the experience derived from long and successful teaching and also the benefits that accrue from practical work with the industries. The department is in good hands and may be expected to continue in a most progressive way.

Professor Francis C. Caldwell retired from the chairmanship of the Department of Electrical Engineering after carrying forward this department in that capacity for a period of twenty-nine years. This department, like that of Mechanical Engineering, has experienced a tremendous growth during this time, endeavoring to keep pace with the University in other directions, and with the growth of the requirements placed upon Electrical Engineers in industry. Large additions have been made rather recently in the equipment of the Department of Electrical Engineering, its faculty has had additions from time to time, and Professor Caldwell like Professor Magruder may look back upon more than a third of a century of building and constructive activity in his department, and establishing and maintaining a sympathetic relationship

to the industry itself. Professor Caldwell continues in the department as a professor and, as in the case of Professor Magruder, will continue to give to the activities of the department the benefits of his long and cumulative experience.

Professor Erwin E. Dreese has succeeded to the chairmanship of this department. Professor Dreese is a graduate of the University of Michigan, where he also had some teaching experience, and has for the past five years been the chief engineer of the Lincoln Electric Works at Cleveland, Ohio. He comes to the department well equipped with a knowledge of the electrical industry, a knowledge of what goes on in the electrical engineering departments of other large universities, and a keen appreciation of the educational problems involved in university work and the relation which may helpfully exist between the department and the industry.

Professor Walter C. Weidler became Dean of the College of Commerce and Administration during the year, succeeding himself as Acting Dean, in which capacity he had been functioning for about two years, since the withdrawal of Dean C. O. Ruggles. This College has experienced a very rapid growth in student enrollment, and the problems of business education have been receiving very careful attention at the hands of the faculty. Dean Weidler has been in the College since its organization and is entirely familiar with the conditions prevailing there and throughout the country in colleges of commerce and administration, and has from time to time had practical experience in the business world. He will bring to the administration careful study of the activities of the College and its relation to business, and will be very active in the professional associations which are intelligently endeavoring to give progressively clearer definition to the program of the colleges of business. The present day state university must function in many fields and on many levels to meet the demands placed upon it by the supporting public, and the College of Commerce and Administration under the administration of Dean Weidler will continue to strive to meet the demands for business training which a changing social and economic order presents.

Professor H. H. Maynard was made chairman of the Department of Business Organization to succeed Dean Weidler and is very familiar with the problems involved in that area of service. This is the large central department of the College; Professor Maynard is very familiar with the work there through his years of experience as a professor, and will give to this large activity a vigorous administration.

At the close of the last year Professor Joseph N. Bradford retired from the position as University Architect, continuing his work with the Department of Architecture in the capacity of Professor. Many of the buildings in the University today owe their design and the supervision of their construction to Professor Bradford, and he has through the years given careful and constructive thought to the arrangement of the buildings with reference to each other and their general plan. The buildings on this campus, like those on most of the campuses of rapidly growing state universities, have been built at different times and under different architects, and the ensemble presents a rather heterogeneous picture. Professor Bradford in recent years, while he has had the responsibilities of University Architect, has endeavored to introduce a note of uniformity and to create a degree of orientation in the newer buildings in order to produce some continuity of design, while at the same time giving to each building as it was constructed complete adaptation to the peculiar uses



to which the building was intended to be put. Good progress has, therefore, been made in the appearance and in the interior arrangement of the buildings to fit into a growing and constantly changing purpose. The services rendered by Professor Bradford have been gratefully acknowledged by the Board of Trustees.

Mr. Howard Dwight Smith was elected Professor of Architecture and University Architect to succeed Professor Bradford. Professor Smith was in the service of the University ten years ago and went into active practice as an architect in the city of Columbus, and came back from that long period of service to take up the work in the University again. He is well equipped intellectually and by long training and takes up the duties and the possibilities of the University Architect with the greatest enthusiasm.

Dean David S. White of the College of Veterinary Medicine resigned early in the year after a continuous service in that capacity of thirty-three years. During this time the College of Veterinary Medicine had made a large growth, in keeping with the growth of the University generally, and became well known throughout the United States. Upon the entrance of the United States into the Great War, the veterinary division of the army became very important, and Dean White was selected and given the rank of Colonel, in command of the Veterinary Division of the American Expeditionary Forces, and rendered distinguished service in France in that capacity. Dean White was well and widely known among veterinarians in the practice and also among the men who were conducting the work in the veterinary colleges of the country, and was a forceful figure in the university councils through this long period of time.

Professor Oscar V. Brumley succeeded to the deanship of the College of Veterinary Medicine. He has been a professor in the College for over thirty years, is well known to the veterinary profession and among veterinary college teachers, and succeeds to the deanship with a firm conviction of the larger place which veterinary medicine must have professionally and educationally, and is taking up the work with great enthusiasm.

During the year Professor J. Ernest Carman was made chairman of the Department of Geology, to succeed the late Professor John A. Bownocker. Professor Carman has seen years of experience as a professor of geology and field worker and has taken up the work with a very progressive and constructive program.

Professor Charles L. Arnold, a graduate of this University in 1890 and a teacher of mathematics here since that time, and well known to thousands of students through these years, retired from active teaching at the end of the year, and was made Emeritus Professor of Mathematics. A long period of capable teaching service and abiding interest in the university activities are gratefully acknowledged.

Miss May Thomas, who has been a teacher in the Department of German for many years, also retired at the end of the year and was made Emeritus Assistant Professor of German. Her teaching has always been earnest and enthusiastic and her interest in the development of the University a vital one.

Certain notable additions were made to the faculty: Professor Willard F. Guard came to the College of Veterinary Medicine from Iowa State College. Professor Alfred Landé came from the University of Tübingen, and Assistant Professor Llewellyn H. Thomas from Cambridge University, England; both joined the staff in Physics. In Soils, Professor Robert M. Salter came from the Ohio Agricultural Experiment Station, and Professor Richard M. Bradfield

from the University of Missouri. In Horticulture, Professor Joseph H. Gourley came from the Ohio Agricultural Experiment Station, Professor Alex Laurie from the Michigan State College, and Professor Howard D. Brown from Purdue University. In Psychology, Professor Floyd C. Dockeray came from Ohio Wesleyan University especially to direct the work in the elementary field, and Professor Horace B. English came from Antioch College to the field of Educational Psychology. Professor James B. Tharp came from the University of Illinois to the Department of Principles of Education. In Social Administration, Professor Charles C. Stillman came from the direction of Social Welfare work in Grand Rapids, and brings a wealth of field experience to his work in the University.

#### NEW SCHOLARSHIPS AND FELLOWSHIPS

In recent years the University has been entrusted with scholarships and fellowships for a variety of purposes created by donors outside of the University, and this has been accepted as one of the hopeful signs of satisfactory and resultful university growth. These endowments for particular purposes have a very widespread interest as will be seen from the following enumeration:

The Payne Fund Motion Picture Research Fellowship, established by the Payne Study and Experiment Fund of New York City  
The Daniel Guggenheim Fund for the Promotion of Aeronautics Fellowship

The Ohio State Florists Association Fellowship

The National Kraut Packers' Association Fellowship

The Potash Export Association Fellowship

Establishment of a fellowship by the Chilean Nitrate of Soda Educational Bureau

Scholarship in Dairy Technology by the Maumee Color Company

Latin-American Scholarship by Ohio Federation of Women's Clubs

Scholarship by State Department of Agriculture to study nutrition of large- and small-mouth black bass

Scholarship by Western Reserve University to carry on study at the Stone Laboratory on Gibraltar Island

Study to be carried on by an appropriation from the National Electric Light Association into the applications of electricity to farm purposes

Scholarship created by the General Education Board in Ceramic Design

Thirty scholarships created by the University for the use of students selected through state-wide high-school scholarship contests and designated by the Director of the State Department of Education, these scholarships being free from the ordinary tuition fee of the University

An agreement was also entered into with the Battelle Memorial Institute providing for cooperation in investigation between the Institute and the Engineering Experiment Station

#### CHANGES AFFECTING DEPARTMENTS

The Department of Oto-Laryngology and Ophthalmology was divided during the year, and the Department of Ophthalmology was created with Professor Albert D. Frost, Chairman, and the Department of Oto-Laryngology with Professor Hugh G. Beatty, Chairman. The line of cleavage seemed very clear, and this division was recommended and approved in the interest of departmental economy and efficiency.



The Department of Phonetics was established in the College of Arts and Sciences. The work in Phonetics had been carried on there for some years, but the importance of the work had been rapidly developing and a separate department seemed to be indicated.

The Department of Medical and Surgical Research was established during the year in the College of Medicine.

The Department of Photography was established, separating this work from that of the Department of Architecture. The work had been originally lodged in the Department of Architecture as a matter of convenience only, and with the growth of this activity the necessity for a separate department had become apparent.

The Bureau of Special Education, dealing with backward, handicapped, or defective children in the public schools, was placed in the University by the last Legislature, and it was during the year set up in the College of Education with a Director in charge. Professor Charles Scott Berry, for a number of years in the College of Education at the University of Michigan and in charge of Special Education in the City of Detroit, was made the Director of this new Bureau.

The work in parental education throughout the State has been in charge of Doctor Jessie A. Charters of the University, and the State Department of Education has actively cooperated in this program; during the year the Department of Adult Education was created in the College of Education, with Doctor Charters as chairman, to absorb this activity and provide for teacher training.

The Division of Alumni Records was established in the office of the Registrar, so that the University might build up and maintain records of its alumni and former students who were not graduated, as complete as it may be possible to obtain. Miss Edith D. Cockins has charge of this work and has been prosecuting it with great vigor.

After a period of study of conditions and upon recommendation of the departments involved, the Departments of Chemistry, Mathematics, and Physics were transferred from the College of Engineering to the College of Arts and Sciences; likewise the Department of Bacteriology was transferred from the College of Medicine to the College of Arts and Sciences.

During the year the name College of Liberal Arts was changed to College of Arts and Sciences, to bring the name into closer correspondence with the increased activities.

#### MISCELLANEOUS EDUCATIONAL ACTIVITIES

Certain gaps had long existed in the Library of the College of Law and during the year an effort was made to fill this need and render the Law Library more useful for study in the fields of the common law and of the statute law of the United States. The Board made a generous appropriation for this purpose.

It was possible during the year to make a beginning in the field of elementary education by establishing, with the cooperation of the School Board of the City of Columbus, an elementary school of three grades in the Indianola public-school building; the Department of Principles of Education in the College of Education has all along felt the need of a laboratory or experimental school. Near the close of the year it was deemed wise to locate the elementary school elsewhere for the coming year so that the enterprise might be entirely under

the control of the College of Education. This venture into the field of elementary education is one that will be promoted with the greatest interest and enthusiasm by the College of Education, and it will assist in the realization of the ideals of the Department of Principles and of the Department of School Administration as well as constituting a desirable field for the activities of the Department of Psychology. The best teaching and supervision will be provided continuously, and the pupils will be the beneficiaries of a constructive program of child study and educational procedures.

It may be noted here that the Pre-School in charge of the Department of Adult Education and largely financed by the State Department of Education has been going on through the year, necessarily in a location outside of the University. The College of Education is very enthusiastic about it. During the year there were hundreds of visitors who came to observe these schools.

The next step in the school program will be the establishment of the University High School, and when this can take place the College of Education will have a system of laboratory schools going from the pre-school to the end of the high school which will enable it to make experiments and to present demonstrations of the greatest benefit to the College of Education and to the schools and colleges of the State.

The University has been contributing generously to the support of the *Journal of Higher Education*, a rather unique publication in this field, edited by the College of Education. This is regarded as a very worthy university enterprise, and its growing circulation is evidence of a receptive interest.

The University also made contribution to the American Council on Education for assisting in its survey of Pharmacy and Pharmaceutical Education in the United States. This enterprise is being supported by private funds as well as by contributions from the various colleges of pharmacy in the United States.

The Fifth Annual Veterinary Conference was held at the University last spring. The interest in this school has been steadily developing, the veterinarians in attendance coming from Ohio and neighboring states, and the speakers being drawn from widely separated regions to bring to the conference the best thought in the particular fields.

The American Institute of Cooperation was invited to the University for the Summer Quarter of 1930, and satisfactory arrangements were made during the past year for its sessions. The Board of Trustees appropriated a substantial sum for this purpose. Certain special arrangements were made for the giving of credit to students who appeared for the activities of the American Institute, and for the Summer Quarter in other courses. This is a step forward on the part of the University in effective cooperation with the numerous groups interested especially in cooperative farm marketing, and because of the great importance attached to that field at this time, especially in view of the creation of the Federal Farm Marketing Board and the appropriations of vast sums of money thereto by the Federal Congress for study in this same field, the coming of the Institute to the University was regarded as a very significant event.

Large expansion in the Summer Quarter of 1930 was provided by the Board of Trustees during the year, on the theory that a wider demand for summer-school opportunities existed than had hitherto been appropriately met by the offerings of the University through its various departments. Many departments have entered very enthusiastically into the enlarged program,



enlarged both with reference to the educational offerings and with reference to the quantity and quality of the faculty to be in charge, and a serious effort is being made in this quarter to render such service as may properly be expected from the University.

During the year a noteworthy series of lectures was delivered at the University by Vilhjalmur Stefansson, dealing with his Arctic explorations extending over a period of years. These lectures were given under the auspices of the College of Commerce and Administration and were greeted by capacity audiences and proved to be most interesting and stimulating.

The pressing needs for books in departments other than in the Law, noted above, were partially met during the year by special appropriations by the Board of Trustees. The departments which were given some relief in this way are Romance Languages, Zoology and Entomology, and History, especially in the field of the Renaissance and of the Reformation.

#### MISCELLANEOUS MATTERS

It was deemed fitting by the Board that the language building, which was developed out of the rebuilt and enlarged Chemistry Building, be given the name Derby Hall, in honor of Professor Samuel C. Derby who taught for many years in the University and whose interest in language was deep and comprehensive.

During the year Neil Hall was taken on lease by the University for a women's dormitory. It has been found that the accommodations there provided are a most desirable addition to the dormitory facilities for women in this University. This is an off-campus venture, the results of which will be observed with great care and the experience there may be useful in the management of projected dormitories off campus by private capital.

None of these, however, have materialized at the present time; and schemes are ever and anon presented to the Board of Trustees for financing men's dormitories either on or off the campus, but solid financial support has not been available in any of these proposals. Dormitories for men must be on a very extended scale and, therefore, up to the present time have seemed financially hopeless if the money for their construction must come from State sources. However, it is hoped that private capital may see its way clear to venture into this field at some time in the near future. The housing of men students especially, aside from the fraternity facilities which are rather ample, is to be obtained in private homes in the neighborhood of the University. A system of inspection of these homes is in operation through the office of the Dean of Men, and great improvement in housing men students in this way has been made in the past two years. Dormitories either off or on the campus to accommodate no more than five hundred men or more would give a nucleus for the social life of these students and for their educational activities which would set the pace for other off-campus accommodations for men, and would, it is believed, give a better tone and an inspirational note to the life of the men students of the University.

The accommodations now provided for women in the dormitories care for about four hundred fifty students, and the housing problem for women is thereby much simplified. It is believed that on the whole the women students have very satisfactory rooming and boarding places. The Dean of Women is very active in reference to housing and living accommodations, and these outside accommodations are constantly being improved.

During the year an arrangement was effected between the College of Veterinary Medicine on one side and the Agricultural Experiment Station and the State Department of Agriculture on the other side, for cooperative activity at the Serum Farm near Reynoldsburg, Ohio. This farm with its fine research accommodations and opportunities is very largely under the management of the Agricultural Experiment Station, shared by the State Department of Agriculture. The plan of cooperation provides that the doctors in charge at the farm will carry some lecture courses in the College of Veterinary Medicine and will be admitted to the University on the same basis as professors who are in residence here, and that a professor from the College of Veterinary Medicine will carry on research at the Farm especially in the field of parasitology. This opens up a valuable connection for the members of the staff of the College and also for the members of the staff at the Serum Farm, to the great benefit of the animal husbandry interests of Ohio. The studies there carried on and the research work prosecuted will inure also to the benefit of the State Department of Agriculture, which has its important functions in regulatory measures relating to sanitation and live-stock diseases in the State.

Publication of studies is made through the Agricultural Experiment Station, and from this viewpoint the relationship that has now been entered into will inure to the great advantage of the live-stock interests of the State and will be very stimulating in the teaching in the College of Veterinary Medicine and in the studies there carried on, and likewise, it is thought, in the activities of the Agricultural Experiment Station at Wooster. This is a good illustration of making use of the facilities provided by the State of Ohio to the fullest extent on the basis of voluntary cooperation. It will be recalled that the University has entered into very extensive cooperative research relationships with the Agricultural Experiment Station; these have been carried to the mutual satisfaction of the institutions and to the great benefit of the people of Ohio for several years.

The late Professor Septimus Sisson in the College of Veterinary Medicine had a large and well-selected library, and a number of these volumes were given to the University Library by Mrs. Sisson. These books are a very welcome addition to the library facilities of the College.

Grateful recognition is made of a collection of chemical elements which was presented to the Museum of Chemistry by Doctor Benjamin C. Brooks and his son William B. Brooks. This collection has been given the name "The Brooks Collection of Chemical Elements," and will be very useful in the Department of Chemistry.

The project of building a large library in Physics in commemoration of the late Professor Alfred D. Cole, for many years chairman of the department, received great impetus during the year by gifts from Mr. Charles F. Kettering, Mr. E. A. Deeds, and some others. Other contributions for this library are being received from time to time and it is growing slowly.

The Carnegie Corporation endowed a project for the study of Alumni education during the year, the study to be carried on under the direction of Doctor Jessie A. Charters. Adult Education has been urgently and widely advocated for the last few years, and one phase of that activity is the further education of the Alumni of the University. It has been represented that the Alumni are finding as time goes on that for certain reasons they desire further education in a particular direction, for benefit or for pleasure, and the thought has been expressed that the University is the natural agency for making this



contribution. Just what the feeling is among our Alumni generally is not known, and the gift by the Carnegie Corporation will enable the University during the year to make a study of their desires. Assuming that Alumni do have a desire for further education from the University as a teaching agency, the whole matter of educational procedures and techniques will then have to be wrought out; we are here opening a field in which we have had practically no experience, and in which the University will venture only after the nature and extent of the needs have been very carefully ascertained. This study project will enable the University to go forward intelligently.

It is noted with sincere recognition that the late Professor George W. McCoard gave his library relating to Mathematics to the University. These books make an interesting addition to the facilities at the disposal of the Department of Mathematics.

Mrs. Lumina C. R. Smith, a graduate of the class of '97, gave the University during the year a large number of volumes of pamphlets and monographs in the field of biology; grateful acknowledgment was made at the time by the Board, and these publications have been placed in the general Library, and in the department library, where they will be most available.

The last Legislature made an appropriation for a physical education building, and the Athletic Board by appropriate action has supplemented this appropriation for the purpose of building a natatorium in connection with this physical education building. When completed the facilities for physical education and for swimming and water sports will be greatly enlarged and will permit the Department of Physical Education to carry on a program of training and practice not hitherto possible. For fifteen years and more the needs in this direction have been insistently urged but without remedy until the present time.

The need for a practice or laboratory high school for the College of Education has long been felt, but was never made possible until the last session of the Legislature, which made a considerable appropriation for a building and equipment for this purpose. The need of the laboratory schools in the College of Education is very clear, to some extent for practice teaching, and to a very large extent for experiments in the application of the principles of education and of educational psychology; to a very helpful extent this school will be useful as a place for observation of methods and procedures, both by the students in the College of Education who are preparing to teach and by the teachers and administrators in the public schools of the State. This laboratory school will be for the College of Education what the laboratory is in the teaching of science; and the faculty of the College feels assured that with this demonstration, observation, and laboratory facility they can go on with the teacher training in a much more assured fashion, and can helpfully expand the usefulness of the College in the educational program of the State.

Remarkable speed has been made with the Pharmacy and Bacteriology Building, provided by the last Legislature. Both of these departments for many years have been housed on the sufferance of other departments and have exercised a tenure "at will." With a new building and new equipment these departments will experience an exhilaration when they go into these new quarters in the autumn not hitherto possible. It occupies a beautiful location facing Neil Avenue opposite the Veterinary Building. Future growth is made possible by planning additions which will extend eastwards.

It should be recorded here that the University granted the honorary

degree of Doctor of Science at the last June Commencement, conferring it upon Orville Wright, a citizen of Ohio whose name is indelibly linked with the first successful aeroplane flying.

#### NECROLOGY

Record is here sorrowfully made of the death of Professor George W. McCoard on March 19, 1930. Professor McCoard came to the University in the autumn of 1882 as a teacher of Latin and Mathematics, but a little later he devoted himself entirely to Mathematics and so continued to the end. In this long service of forty-eight years he came to know a multitude of students, was always a welcome figure in faculty gatherings and activities, and contributed the great part of his adult life to the interests and the growth of the Ohio State University.

Record is also herewith made of the death of Assistant Professor Frederick G. Charles of the Department of Horticulture on April 25, 1930, and of Grace V. Walker, Professor of Home Economics, on April 6, 1930. These members of the faculty are remembered with pleasure by their colleagues, and their lives and their teaching activities have influenced many students who hold them in kindest remembrance.

#### THE GRADUATE SCHOOL

Following upon the reorganization of the Graduate Council last year, when the various departments of the University received group representation, the Graduate Council has continued the intensive study of the activities of the Graduate School. This study resulted in a comprehensive report submitted to the faculty by the Graduate Council in March last. This report is based upon the reports of twelve committees which for over a year were industriously looking into such subjects as "Selection of the Instructional Staff of the Graduate School," "Stimulation of the Spirit of Scholarly Work," "How Can the Quality of Graduate Students Be Improved," "How Can the Quality of Graduate Courses Be Improved," "Evaluation of Research Work," "Research in the Professional Field," "The Training of College Teachers," and others. The studies by these separate committees were very exhaustive and were worked over very carefully by Dean McPherson and Professor Carl Wittke, Assistant to the Dean of the Graduate School during the year, and the report of the Graduate Council is a thoughtful and stimulating document. It stresses the need for extending more adequate financial aid to students working in the graduate field and finds that such aid is rather liberally extended in other institutions of similar rank; here the Legislature for some years has been appropriating ten thousand dollars annually to be used for scholarships and fellowships rated respectively at three hundred and five hundred dollars annually; in addition a large number of departments employ graduate assistants who spend a part of their time in teaching or assisting in the instructional work, the rest of it in graduate study, and are paid five hundred dollars annually. For several years the Graduate Council has been urging the advisability of providing fellowships or graduate assistantships carrying a larger stipend, from a thousand to twelve hundred dollars, so that members of the instructional staff of the colleges of Ohio may take advantage of these fellowships and come to the Ohio State University to carry graduate study. Many of them would like to do so at the present time, but the stipend here is not sufficient and they find it difficult to obtain leaves of absence on any material



salary from the institutions where they are in service. An arrangement of this kind would be a real contribution on the part of the State University to collegiate instruction in Ohio, and in this connection it must be remembered that there are forty-five or more institutions in Ohio of collegiate grade.

A conception of the place of this institution in the educational life of the State properly regards it as rendering service not only to education conducted on a public foundation, but to education conducted on any foundation in the State, and a very material assistance can be rendered to collegiate instruction in this State by providing fellowships open to college instructors, paying a higher annual stipend. The legislative appropriation for scholarships and fellowships has not increased for some years; there has been a great increase, however, in the number of graduate assistantships carrying an annual stipend of five hundred dollars, and of course these stipends are paid out of legislative appropriation with some exceptions. Scholarships and fellowships have been established by foundations or private institutions or industries, and the number of these is increasing each year. There is no uniformity in the stipends passing to the graduate students who take up these scholarships and fellowships and the tendency is to make the stipend considerably larger than that which has been so far allowed from legislative appropriation.

The report proceeds with a careful appraisal of the methods of selecting graduate students, of determining their ability to advance to the doctorate, of the need of greater library provision to accommodate the graduate students in their various fields of study, the requirement for better equipment in certain laboratories, and other matters of great interest in this field. The report then presents certain recommendations growing out of these studies which are copied herewith:

#### RECOMMENDATIONS

1. That the Faculty approves the practice of calling distinguished professors of other universities to the Ohio State University for more or less extended teaching and research service and recommends its further development.
2. That the Faculty approves the general plan whereby it is possible for members of the instructional staff to obtain partial or complete relief from their routine duties during one or more quarters, in order to enable them to complete a piece of research, and recommends the further development of this plan.
3. Since in any university there are always some members of the instructional staff who give their time primarily to teaching while others devote themselves largely to pursuing or directing research, the Faculty expresses its judgment that it is neither possible nor desirable to fix any minimum teaching load requirement suitable for all alike. Such a requirement should be adjusted in each individual case in accordance with the character of the work done.
4. That the Faculty approves the recommendation of the Graduate Council that it is desirable to increase the sum available for University scholarships and fellowships; also, that honorary fellowships and post-Ph.D. fellowships should be established as soon as circumstances permit.
5. That the Faculty approves the recommendations of the Graduate Council that suitable plans should be devised to facilitate a more intimate relationship between the Ohio colleges and the Graduate School of the University, by such means as visiting lecturers, special bulletins, professional gatherings, etc.; also, that a special class of fellowships be created for members of the instructional staff of those colleges included in the Ohio College Association who wish to continue their work for the Ph.D. degree at the Ohio State University.

6. The Faculty joins with the Graduate Council in recommending that immediate steps be taken to provide a plan extending over a number of years that will make the library equipment of the University more adequate and comparable with the other universities with which the Ohio State University is naturally associated; and that this plan should include a proposal for a more adequate library building.
7. The Faculty approves any proper effort made to secure larger appropriations for the purchase of research apparatus and equipment and recommends that the expenditure of such research funds be subject to the recommendation of the Graduate Council.
8. That the Faculty approves the effort being made for the promotion of greater research activity in the professional schools, in the hope that a closer integration of the work of these schools and the various bureaus of research, experiment stations, and other state institutions, with the Graduate School, will be helpful to all concerned in the promotion of research work.
9. The Faculty approves the recommendation of the Graduate Council to the effect that no member of the teaching staff, holding the rank of professor, associate professor, or junior dean, or no one occupying a major administrative position, be permitted to pursue work in this University for credit toward a degree in this University; and that no member of the staff, holding the rank of assistant professor, be allowed to become a candidate for a graduate degree in this University, except after investigation and with the consent of the Graduate Council. This action is not to be considered as retroactive.
10. The Faculty approves of the recommendation of the Graduate Council to the effect that the general examination for the degree of Doctor of Philosophy must be taken not later than the middle of the second quarter preceding the quarter in which the candidate expects to come up for his degree; that this examination should cover the fundamentals of the entire field in which the candidate has elected to specialize without limitation to the courses which the candidate has pursued. The examination must be a written one, but an additional oral examination may be given if the committee in charge of the examination so elects. Admission to candidacy should be based primarily upon the result of this examination. After this examination has been passed, the student will be given complete freedom from all course requirements during the remainder of his work, subject only to the advice exercised by the department in which his major interest lies.
11. That departments training doctor's candidates to become teachers in their respective fields be encouraged to investigate the possibility of modifying the requirements so as to more adequately equip the candidates for their life work. In this connection the departments should consider the desirability of awarding the degree of Doctor of Education, in place of Doctor of Philosophy, to those candidates who are fitting themselves for collegiate teaching.
12. Omitted.
13. The Faculty realizes the importance of providing dormitories for graduate students, as well as of providing better living accommodations for the increasing number of married graduate students and will welcome any practical plan for securing these accommodations.
14. That the proposal of the Graduate Council to formulate a plan whereby graduate student opinion may be obtained in regard to matters pertaining to the Graduate School, be approved.
15. The faculty expresses its belief that some systematic and persistent effort should be made to secure funds for worthy projects, from alumni and other persons interested in the University; and that in this connection appreciation be expressed to the Ohio State University Association for the proposal to establish an Alumni Research Council with a view to raising funds for the endowment of research.



A study of the enrollment in the Graduate School shows a steady increase from the year 1918, when the registration stood at about two hundred fifty, up to the present time, when it stands at 2,444; this is an increase of about four hundred over the year 1929. Nearly one-sixth of the total enrollment of the University for the year is in the graduate area. The applications for fellowships and scholarships are far in excess of the possible awards, about six to one, making it possible to select with great discrimination, thereby steadily lifting the quality of the graduate student body.

It is seen that the Graduate Council is giving the keenest attention to the problems of selection of graduate students, the facilities for graduate work, the educational procedures which will accomplish the best results with graduate students, and the selection of professors to carry on the teaching in the graduate field. For four years the University has been making an unusual effort to strengthen the teaching and improve the educational processes going forward with the freshmen and sophomores, and the University faculty is very enthusiastic about the accomplishments being continuously made in that area. This report of the Graduate Council makes plain the necessity of strengthening the graduate teaching and presents the efforts that have been made to accomplish this result.

All salary limits previously observed have been fractured in the last two years, and departments have been very eager to make substantial additions to their faculties in the upper range, and this movement has had the substantial encouragement of the Board of Trustees. Many disappointments are experienced in endeavoring to persuade men of outstanding professorial ability elsewhere to come to the Ohio State University, but some notable successes have been registered; the experience here in this respect is not different from that of other universities which have been endeavoring to do the same thing. Men of high quality have made a reputation elsewhere and are on the whole quite happy in their present environment; the opportunities which have helped them to pre-eminence have been afforded in the institutions with which they are now connected, and because of all these elements in the situation and the further element of uncertainty connected with a transfer to another institution and the new experiences there awaiting them, it has been difficult to add any considerable number of professors of exceptionally high rank. The University, however, is persevering in this purpose, and is profiting by its experiences; and is seriously proceeding with the sole purpose of making such additions only as can be approved on the basis of high attainment and exceptional professorial ability.

In making such additions not only is teaching ability considered but also the ability to carry on research, the tendency to systematic intensive study and publication of results. The presence on a faculty of a reasonable number of men of eminent research ability is a stimulus to other members of the faculty which cannot be evaluated too highly; the daily associations and the constant interchange of ideas and projects and enthusiasms among faculty people create a spirit of study and inspire purposes of personal advancement that make the University the center of a very productive industry. No one will question the efficacy of all these elements in the university life; the graduate activities stir the depths in all our colleges, and the teaching and study on the most elementary levels are the beneficiaries of the activity on the highest level. There is a consistency and an integrity in the constitution of the University which brings a quick response in every area to a fine educating influence felt

in any area. We go up or down together, no region of our activities can be utterly bad while there is present in another region something that is exceptionally good, and improvement in one place means advancement in all others.

Recent annual reports have been calling attention to the work with the freshmen and sophomores and the work with the graduate students, but it must not be inferred that the work with the students between has in any degree been intermitted. The juniors and seniors have felt the effects of the improvement above and below, and progress has been steadily made in the work with these two classes also. It has been the clear purpose of the University to intermit its efforts nowhere, but to improve its performance everywhere; the emphasis has been coming at the extremes because there was where it was most seriously felt to be due. If our attitudes and processes with the freshmen are as we should most like them to be, then certainly the sophomore and the junior and the senior will go on more successfully than hitherto; these classes necessarily feel the stimulating effects of improvement in dealing with the freshmen. When the senior steps into the graduate area the character of his work and the manner of its performance will be different, and he should at that time feel the stimulus of the great spirit and enthusiasm in these advanced fields, so that, as it were, he may begin anew with a new objective.

The foregoing pages present some of the interesting happenings of the past year; there are many more not chronicled. The department reports hereinafter printed present their own picture, while a number of other reports have been omitted because of lack of space. To these the administration also gives careful reading and upon them great reliance is placed for information about the progress of the University, its departmental hopes, aims, and disappointments.

These reports are permeated with the spirit of industry, the exhilaration which comes from a developing, forward-looking program, and the desire to make the life of the student fuller and the contribution of the professor wiser and more stimulating.

A state university must be close to the soil, to the factory, to trade, to education, to the professions, to the various programs for physical recreation, to the fine arts; it finds these interests supported by and proceeding from certain conceptions of their relative importance in our civilization, and these the university must seek to understand and appraise. It must promote a scheme of education which comprehends all these institutions and forces which are effective in the life of today, and must point the way to their progressive development; its program is present and future and is built upon the past. It is, therefore, continuous; and without integration and continuity no plan can produce stimulus and advance.

The University is both teacher and prophet, a goad and an inspiration, a huge and complicated physical plant and a spiritual and intellectual center of learning and guidance, affected with the responsibility of parent and grandparent, a thesaurus of the known and a discoverer of the unknown!

The irrefutable testimony to all this is 25,000 graduates, 55,000 non-graduates, 15,000 present students, and 1,000 teachers devoted to classroom and laboratory and the symmetrical development of the lives of these young people.

The citizens of Ohio have this growing conception of the purposes and the expected accomplishments of the University; multiplying courses and expanding curricula are the University's means of meeting these expectations; all



requests for enlarged service are considerably regarded. Some are found wanting in educational quality and others find place in the scheme of activity, while some older activities of the University are discontinued. But most changes are not abrupt breaks with the past—there are few such. They are rather integrations of old and constantly changing new, lengthening avenues reaching from the sunset of yesterday to the sunrise of tomorrow, charged with the spirit of progress in manifold directions into the regions of the material, the spiritual, the moral.

A state university owes its origin to democratic conceptions of the needs of citizenship and fundamental social and industrial service; these needs have now been referred to education on all levels, and the University is accepted with assurance as one of the State agencies. Year by year the weight of its responsibilities grows, and so swiftly does society move forward that constantly we have been under the stress of appraising the University and delimiting its field of endeavor. Notwithstanding, we still have much to learn about it. Because of the mounting dependence upon it we are still in the area of tragedies due to failure of function and unadapted non-adjusted human materials; there is some wreckage. Social and educational values do not yield to statistical statement or evaluation; and the products, even those labeled unsatisfactory scholastically, of the University's processes, become, we may believe, considerable elements in the social order. Graduation is not always desirable, but who shall say that in both these cases the individual may not have received a valuable stimulus? Not all the virtues of the State University lie in the exceptional training which it must be equipped to give the high-quality brain! Social virtues, the ability to live together, the vision of self-help as well as mutual dependence, the ideals of political citizenship—these are all significant ends and to their realization the University contributes much!

A recent book on "Universities" experiences some difficulty in formulating a definition of this institution; however, the gist of a long opening chapter is that the University is an institution where

- I. Knowledge and ideas are conserved
- II. Knowledge and ideas are interpreted
- III. Search for truth is carried on
- IV. Students are trained to do I and II.

Further along this writer says:

But a University in the sense in which I use the term—an institution consciously devoted to the pursuit of knowledge, the solution of problems, the critical appreciation of achievement, and the training of men at a really high level— . . .

Here we have descriptive definitions into which a State University may be fitted in part; it connotes some activities that may not be so defined. May it not, nevertheless, be a "University"? It has spread into other types of activity, but that has not necessarily disabled it from functioning and functioning well, in these "de luxe" fields. In its endeavor to serve the interests of the commonwealth, the State University has become "tumultuous," and it does not lack "select" company in Flexner's view. It all depends upon the definition recognized; until some more convincing criteria are advanced the term will still be thought proper for the state institutions. We are still under the necessity of clarifying our ideas about culture and the practical versus the cultural, and although this book advances the discussion, it does not settle the question.

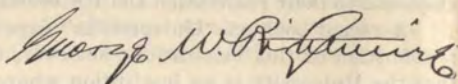
And so I venture to adhere to the belief that the State University is performing a work of immeasurable significance and despite its "spread" it is nevertheless a "University."

We must not remit our efforts to improve it; its twenty-five hundred or more courses could be reduced 25 per cent at least, and with great resulting benefit to the remaining courses which now should comprehend them and would, therefore, readily absorb them. One of the pressing duties of university faculties today is to end the infinite comminution of subject matter.

Another obsession from which we must free ourselves is the practice of marking each tiny course with a quantum of credit; why not shape the offerings toward an accounting at the end of one year or even two years, or in specialized fields at the end? This would give texture to the intellectual achievements and an integrity that connotes durability and usefulness—in other words, an education, not a chain of islets of credit in a sea of related knowledge!

We could vastly improve our social procedures with students—personnel work is in its infancy, and of course the danger is that we go to the extreme of paternalistic methods, or perchance, maternalistic. The line bounding personnel effort lies here somewhere, but we may be sure we have not approached it in our state universities. Perceiving our institutional weaknesses brings the remedy nearer; our faculty has all these and other vital matters under critical discussion, and progress is being made. We cannot fail to see that some of our practices call for early and sturdy treatment!

The following tables present a variety of statistics which will be of interest as a part of the summary of the year's activities.



President.



## ENROLLMENT OF STUDENTS IN THE YEAR 1929-30

## 1. GRAND TOTAL

	Men	Women	Total
Current Total.....	8,295	3,518	11,813
Summer Quarter .....	1,974	1,854	3,828
Stone Laboratory .....	24	19	43
Total.....	10,293	5,391	15,684
Duplicates in Summer Quarter.....	937	620	1,557
Total.....	9,356	4,771	14,127
Winter Courses in Agriculture (Poultry and Dairying).....	335	33	368
Grand Net Total.....	9,691	4,804	14,495
Commerce Extension Courses.....	513	134	647
Grand Year Total.....	10,204	4,938	15,142

## 2. BY QUARTERS—MEN AND WOMEN

COLLEGE	AUTUMN, WINTER SPRING QUARTERS			SUMMER QUARTER DUPLICATES		
	Men	Women	Total	Men	Women	Total
Agriculture .....	558	362	920	43	58	101
Applied Optics .....	34	2	36	1	.....	1
Arts .....	1,611	656	2,267	140	69	209
Arts-Education .....	15	70	85	4	21	25
Commerce .....	1,799	440	2,239	112	40	152
Dentistry .....	236	1	237	2	.....	2
Education .....	542	1,452	1,994	75	241	316
Engineering .....	1,688	5	1,693	108	1	109
Law .....	288	8	296	1	.....	1
Medicine .....	301	12	313	3	.....	3
Nursing .....	0	84	84	.....	27	27
Pharmacy .....	167	20	187	16	3	19
Veterinary Medicine .....	123	.....	123	7	.....	7
Graduate School .....	936	406	1,342	354	117	471
	8,298	3,518	11,816	866	577	1,443
*Less Duplicates in Graduate- Medicine .....	3	.....	3	.....	.....	.....
	8,295	3,518	11,813			
Number that changed Colleges....	.....	.....	.....	65	36	101
				931	613	1,544
Stone Laboratory .....	.....	.....	.....	6	7	13
Total Duplicates .....	.....	.....	.....	937	620	1,557

\* Paid fees in both Colleges.

## SUMMARY OF ENROLLMENT BY COLLEGES AND CLASSES

YEAR 1929-30

	FRESHMAN			SOPHOMORE			JUNIOR			SENIOR			SPECIAL			IRREGULAR			TOTAL		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agriculture.....	215	75	290	70	63	133	135	122	257	124	94	218	11	2	13	3	6	9	558	362	920
Applied Optics.....	10	2	12	10	.....	10	9	.....	9	5	.....	5	.....	.....	.....	.....	.....	.....	34	2	36
Arts.....	594	215	809	344	109	453	437	167	604	206	144	350	20	11	31	10	10	20	1,611	656	2,267
Arts-Education.....	1	6	7	2	7	9	5	16	21	7	40	47	.....	.....	.....	.....	1	1	15	70	85
Commerce.....	635	146	781	419	98	517	418	122	540	315	64	379	11	10	21	1	.....	1	1,799	440	2,239
Education.....	150	334	484	116	202	318	128	392	520	121	349	470	9	57	66	18	118	136	542	1,452	1,994
Engineering.....	516	2	518	525	2	527	341	.....	341	294	1	295	10	.....	10	2	.....	2	1,688	5	1,693
Pharmacy.....	38	6	44	45	5	50	38	2	40	46	7	53	.....	.....	.....	.....	.....	.....	167	20	187
Veterinary Medicine.....	32	.....	32	36	.....	36	33	.....	33	22	.....	22	.....	.....	.....	.....	.....	.....	123	.....	123
	2,191	786	2,977	1,567	486	2,053	1,544	821	2,365	1,140	699	1,839	61	80	141	34	135	169	6,537	3,007	9,544

## PROFESSIONAL COLLEGES

	First		Second		Third		Fourth		Special			Irregular			Total						
Dentistry.....	52	.....	52	48	1	49	71	.....	71	65	.....	65	.....	.....	.....	236	1	237			
Law.....	188	2	140	84	4	88	66	2	68	.....	.....	.....	.....	.....	.....	288	8	296			
Medicine.....	98	3	101	71	.....	71	75	4	79	57	5	62	.....	.....	.....	301	12	313			
Nursing.....	.....	64	64	.....	20	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	84	84			
	288	69	357	203	25	228	212	6	218	122	5	127	.....	.....	.....	825	105	930			
Total.....	2,479	855	3,334	1,770	511	2,281	1,756	827	2,583	1,262	704	1,966	61	80	141	34	135	169	7,362	3,112	10,474
Graduate School.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	936	406	1,342
Less Duplicates in Grad.-Medicine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,298	3,518	11,816
Grand Total.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,295	3,518	11,813



# SUMMARY YEAR 1929-30

## ENROLLMENT BY COUNTIES FOR FISCAL YEAR 1929-30\*

Adams	30	Hardin	74	Paulding	21
Allen	101	Harrison	35	Perry	71
Ashland	52	Henry	33	Pickaway	106
Ashtabula	121	Highland	41	Pike	22
Athens	49	Hocking	32	Portage	77
Auglaize	61	Holmes	19	Preble	49
Belmont	126	Huron	63	Putnam	42
Brown	22	Jackson	55	Richland	91
Butler	104	Jefferson	120	Ross	96
Carroll	17	Knox	83	Sandusky	82
Champaign	56	Lake	62	Scioto	86
Clark	141	Lawrence	47	Seneca	65
Clermont	33	Licking	173	Shelby	44
Clinton	55	Logan	86	Stark	260
Columbiana	93	Lorain	161	Summit	191
Coshocton	63	Lucas	237	Trumbull	115
Crawford	93	Madison	98	Tuscarawas	100
Darke	77	Mahoning	246	Union	77
Defiance	31	Marion	119	Van Wert	44
Delaware	186	Medina	53	Vinton	14
Erie	96	Meigs	41	Warren	30
Fairfield	150	Mercer	54	Washington	108
Fayette	54	Miami	60	Wayne	136
Fulton	54	Monroe	45	Williams	65
Gallia	32	Montgomery	308	Wood	92
Geauga	46	Morgan	62	Wyandot	49
Greene	82	Morrow	37	Cuyahoga	1,156
Guernsey	62	Muskingum	158	Franklin	4,882
Hamilton	204	Noble	26		
Hancock	92	Ottawa	41	Total	13,223

\* Including Autumn, Winter and Spring Quarters, number in Summer Quarter and Lake Laboratory who did not return during the current year, and the Winter Course in Agriculture.

## ENROLLMENT BY COUNTIES FOR ACADEMIC YEAR 1929-30

Adams	18	Hardin	51	Paulding	14
Allen	70	Harrison	28	Perry	57
Ashland	44	Henry	20	Pickaway	70
Ashtabula	99	Highland	30	Pike	15
Athens	37	Hocking	24	Portage	56
Auglaize	52	Holmes	14	Preble	40
Belmont	110	Huron	50	Putnam	31
Brown	10	Jackson	42	Richland	76
Butler	85	Jefferson	97	Ross	66
Carroll	14	Knox	48	Sandusky	63
Champaign	45	Lake	45	Scioto	76
Clark	112	Lawrence	32	Seneca	44
Clermont	29	Licking	130	Shelby	35
Clinton	45	Logan	68	Stark	221
Columbiana	78	Lorain	132	Summit	169
Coshocton	47	Lucas	198	Trumbull	88
Crawford	60	Madison	74	Tuscarawas	76
Darke	61	Mahoning	205	Union	54
Defiance	27	Marion	91	Van Wert	32
Delaware	126	Medina	45	Vinton	9
Erie	83	Meigs	38	Warren	24
Fairfield	114	Mercer	36	Washington	81
Fayette	39	Miami	42	Wayne	109
Fulton	39	Monroe	36	Williams	51
Gallia	16	Montgomery	259	Wood	47
Geauga	37	Morgan	51	Wyandot	32
Greene	50	Morrow	23	Cuyahoga	1,034
Guernsey	46	Muskingum	121	Franklin	4,169
Hamilton	170	Noble	12		
Hancock	64	Ottawa	28	Total	10,736

# SUMMARY YEAR 1929-30

## ENROLLMENT BY COUNTIES FOR SUMMER QUARTER AND LAKE LABORATORY 1929

	S.Q.	L.L.		S.Q.	L.L.		S.Q.	L.L.
Adams	11		Hardin	33	2	Paulding	11	
Allen	37		Harrison	12		Perry	22	
Ashland	11		Henry	8		Pickaway	43	
Ashtabula	30		Highland	14	1	Pike	10	
Athens	19		Hocking	11		Portage	23	1
Auglaize	11		Holmes	7		Preble	11	
Belmont	26		Huron	9		Putnam	12	
Brown	12		Jackson	27		Richland	27	
Butler	28	1	Jefferson	34	1	Ross	30	
Carroll	7		Knox	37	1	Sandusky	17	1
Champaign	16		Lake	16		Scioto	14	
Clark	33		Lawrence	20		Seneca	25	1
Clermont	5		Licking	52		Shelby	9	
Clinton	15	1	Logan	24		Stark	55	1
Columbiana	18		Lorain	33		Summit	30	
Coshocton	16	1	Lucas	57		Trumbull	29	
Crawford	33	1	Madison	24		Tuscarawas	29	
Darke	17		Mahoning	57		Union	28	1
Defiance	7		Marion	37		Van Wert	13	
Delaware	73		Medina	8		Vinton	4	
Erie	10		Meigs	4		Warren	6	
Fairfield	42		Mercer	17	1	Washington	38	3
Fayette	13	1	Miami	22		Wayne	34	1
Fulton	17		Monroe	11		Williams	20	
Gallia	16		Montgomery	69	3	Wood	50	2
Geauga	11		Morgan	22		Wyandot	18	
Greene	36	1	Morrow	14		Cuyahoga	1,390	3
Guernsey	26		Muskingum	49	1	Franklin	161	5
Hamilton	24		Noble	21				
Hancock	38	2	Ottawa	9		Total	3,575	37

# SUMMARY YEAR 1929-30\*

## RELIGIOUS CENSUS FOR FISCAL YEAR 1929-30

African M. E.	54	Methodist Protestant	57
Baptists	550	Southern Methodist	9
Brethren	65	Mission	2
Catholic	955	Missionary	2
Christian	317	Moravian	9
Christian Science	153	Mormon (Latter Day Saints)	6
Christian Union	4	Nazarene	6
Church of Christ	145	Pilgrim Holiness	2
Church of God	13	Presbyterian	1,812
Church of Second Advent.	1	Protestant	90
Community	91	Protestant Episcopal	5
Congregational	489	Reformed	213
Disciple	53	Reformed Jewish	19
Dunkard	2	Seventh Day Adventist	9
Episcopal	444	German Reformed	7
Evangelical	135	Swedenborg	1
Evangelical Protestant	15	Swedish Mission	2
Friends (Quakers)	64	Union	6
Gospel	1	Unitarian	25
Greek Orthodox	10	United	3
Ind. Protestant	12	United Brethren	302
International Bible Student	7	United Presbyterian	151
Jewish	847	Universalist	24
Lutherans	792	Zionist	1
Mennonite	37	None given	2,781
Methodist Episcopal	3,744		
Free Methodist	1	Total	14,495

\*Including Autumn, Winter, and Spring Quarters, number in Summer Quarter and Lake Laboratory who did not return during the current year, and the Winter Course in Agriculture.



# SUMMARY YEAR 1929-30

## RELIGIOUS CENSUS FOR ACADEMIC YEAR 1929-30

African M. E. ....	36	Methodist Protestant .....	44
Baptists .....	440	Southern Methodist .....	2
Brethren .....	36	Mission .....	2
Catholic .....	877	Missionary .....	1
Christian .....	237	Moravian .....	7
Christian Science .....	132	Mormon (Latter Day Saints).....	6
Christian Union .....	1	Nazarene .....	6
Church of Christ .....	92	Pilgrim Holiness .....	2
Church of God .....	7	Presbyterian .....	1,494
Church of Second Advent .....	1	Protestant .....	74
Community .....	79	Protestant Episcopal .....	5
Congregational .....	394	Reformed .....	166
Disciple .....	37	Reformed Jewish .....	17
Dunkard .....	1	Seventh Day Adventist .....	2
Episcopal .....	376	German Reformed .....	7
Evangelical .....	114	Swedenborgian .....	1
Evangelical Protestant .....	12	Swedish Mission .....	2
Friends (Quakers) .....	49	Union .....	4
Gospel .....	1	Unitarian .....	21
Greek Orthodox .....	9	United .....	3
Ind. Protestant .....	12	United Brethren .....	222
International Bible Student .....	7	United Presbyterian .....	103
Jewish .....	821	Universalist .....	22
Lutheran .....	662	Zionist .....	1
Mennonite .....	20	None given .....	2,164
Methodist Episcopal .....	2,982		
Free Methodist .....		Total .....	11,813

# SUMMARY YEAR 1929-30

## RELIGIOUS CENSUS FOR SUMMER QUARTER AND LAKE LABORATORY, 1929

	S.Q.	L.L.		S.Q.	L.L.
African M. E. ....	21	...	Methodist Protestant .....	20	...
Baptists .....	155	5	Southern Methodist .....	7	...
Brethren .....	38	...	Mission .....	1	...
Catholic .....	152	2	Missionary .....	1	...
Christian .....	112	...	Moravian .....	4	...
Christian Science .....	32	...	Mormon (Latter Day Saints).....	...	...
Christian Union .....	3	...	Nazarene .....	1	...
Church of Christ .....	77	...	Pilgrim Holiness .....	...	...
Church of God .....	6	...	Presbyterian .....	508	6
Church of Second Advent.....	...	...	Protestant .....	20	...
Community .....	15	...	Protestant Episcopal .....	...	...
Congregational .....	148	4	Reformed .....	63	...
Disciple .....	26	...	Reformed Jewish .....	4	...
Dunkard .....	1	...	Seventh Day Adventist.....	7	...
Episcopal .....	113	3	German Reformed .....	1	...
Evangelical .....	35	...	Swedenborgian .....	...	...
Evangelical Protestant .....	6	...	Swedish Mission .....	...	...
Friends (Quakers) .....	24	...	Union .....	2	...
Gospel .....	1	...	Unitarian .....	6	...
Greek Orthodox .....	1	...	United .....	...	...
Ind. Protestant .....	1	...	United Brethren .....	104	2
International Bible Student.....	...	...	United Presbyterian .....	64	1
Jewish .....	63	...	Universalist .....	6	...
Lutheran .....	197	2	Zionist .....	...	...
Mennonite .....	20	...	None given .....	660	4
Methodist Episcopal .....	1,144	14			
Free Methodist .....	1	...	Total .....	3,871	43

# SUMMARY YEAR 1929-30

## OCCUPATIONAL CENSUS OF PARENTS AND GUARDIANS FOR

### FISCAL YEAR 1929-30

Accountants, Clerks, Bookkeepers.....	305	Janitors .....	34
Advertising .....	30	Jewelers .....	49
Apiarists .....	2	Jobbers .....	13
Architects, Draftsmen .....	39	Junk Dealers .....	11
Army and Navy.....	18	Laborers .....	114
Artisans .....	49	Landscape Gardeners .....	12
Attorneys, Judges, Statesmen.....	206	Laundrymen .....	9
Auctioneers .....	3	Lecturers .....	2
Automobile Dealers .....	44	Librarians .....	5
Aviators .....	1	Liverymen and Teamsters.....	20
Bakers and Confectioners.....	53	Livestock Dealers .....	26
Bankers .....	114	Machinists .....	148
Barbers and Beauty Culture.....	64	Manufacturers .....	177
Baseball Players .....	3	Mechanics .....	104
Blacksmiths .....	27	Merchants .....	666
Bookbinders .....	3	Millers .....	27
Brokers .....	48	Mine Operators, Etc. ....	55
Business .....	143	Missionaries .....	7
Business Executives, Etc.....	523	Musicians and Artists.....	24
Butchers and Meat Dealers.....	36	Oil Producers .....	68
Cantors .....	4	Opticians and Optometrists.....	9
Carpenters and Cabinet Makers.....	170	Osteopaths and Chiropractors.....	7
Chauffeurs .....	2	Photographers .....	11
Chefs, Cooks, Caterers.....	18	Physicians, Surgeons, Nurses .....	270
Chemists .....	17	Plasterers .....	12
Chiroprodists .....	2	Plumbers .....	33
Clergymen .....	204	Potters .....	21
Coal and Ice.....	36	Poultrymen .....	14
Contractors and Builders.....	335	Printers and Publishers.....	75
Dairymen .....	46	Quarrymen .....	8
Decorators and Painters.....	77	Radio Men and Dealers.....	5
Dentists .....	78	Railway, Etc. ....	407
Designers .....	11	Real Estate .....	226
Detectives .....	2	Retired .....	517
Druggists and Pharmacists.....	94	Roofers and Tinnerns.....	12
Dry Cleaners and Pressers.....	22	Rubber Workers .....	17
Editors and Newspapermen.....	30	Salesmen .....	529
Electricians .....	47	School Officials .....	313
Engineers (Prof.) .....	239	Scientists .....	2
Engineers (Stat.) .....	105	Shoeworkers and Repairers.....	33
Entomologists .....	1	Social Workers .....	8
Farmers and Ranchers.....	1,706	Students .....	1
Filling Station Operators.....	14	Tailors and Seamstresses.....	87
Fishermen .....	1	Taxidermists .....	1
Florists, Gardeners, Nurserymen.....	95	Telegraph and Telephone.....	53
Foremen .....	127	Theater .....	17
Fruit Dealers .....	22	Toolmakers .....	10
Furniture Dealers .....	22	Traffic Managers .....	13
Furriers .....	11	Transfer and Storage.....	25
Garage and Repairing.....	35	Undertakers .....	25
Gas and Fuel.....	19	Upholsterers .....	4
Glassworkers .....	12	Veterinarians .....	22
Golf, Professional .....	5	Violin-Makers and Repairers.....	2
Government, State, City.....	416	Watchmen .....	15
Grain, Hay Lumber.....	66	Weavers .....	3
Grocers .....	121	Well-Drillers .....	3
Hotel, Restaurant Owners.....	59	Wholesale .....	33
Importers .....	3	Wiredrawers .....	4
Inspectors .....	29	Y.M. and Y.W.C.A. and Social Workers .....	11
Insurance .....	172	Mother with no occupation.....	1,248
Interior Decorators .....	14	None Given or Deceased.....	2,482
Inventors .....	2		
Iron and Steel Workers.....	132	Total.....	14,495



# SUMMARY YEAR 1929-30

## OCCUPATIONAL CENSUS OF PARENTS AND GUARDIANS FOR SUMMER QUARTER AND LAKE LABORATORY, 1929

	S. Q.	L. L.		S. Q.	L. L.
Accountants, Clerks, Bookkeepers..	49	1	Junk Dealers .....	1	..
Advertising .....	4	..	Laborers .....	21	..
Apiarist .....	1	..	Landscape Gardeners .....	..	..
Architects, Draftsmen .....	4	1	Laundrymen .....	1	..
Army and Navy.....	4	..	Lecturers .....	..	..
Artisans .....	8	..	Librarians .....	1	..
Attorneys, Judges, Statesmen.....	40	1	Livermen and Teamsters.....	4	..
Auctioneers .....	2	..	Livestock Dealers .....	7	..
Automobile Dealers .....	5	..	Machinists .....	36	..
Aviators .....	1	..	Manufacturers .....	28	..
Bakers and Confectioners.....	16	..	Mechanics .....	18	..
Bankers .....	32	..	Merchants .....	119	4
Barbers and Beauty Culture.....	9	..	Millers .....	6	..
Baseball Players .....	..	..	Mine Operators, Etc.....	12	..
Blacksmiths .....	10	..	Missionaries .....	5	1
Bookbinders .....	1	..	Musicians and Artists.....	5	..
Brokers .....	4	..	Oil Producers .....	26	..
Business .....	26	..	Opticians and Optometrists.....	1	..
Business Executives, Etc.....	72	..	Osteopaths and Chiropactors.....	2	..
Butchers and Meat Dealers.....	2	..	Photographers .....	..	..
Carpenters and Cabinet Makers...	55	2	Physicians, Surgeons, Nurses.....	63	1
Chauffeurs .....	..	..	Plasterers .....	3	..
Chefs, Cooks, Caterers.....	3	..	Plumbers .....	5	..
Chemists .....	1	..	Potters .....	4	..
Chiroprodists .....	..	..	Poultrymen .....	3	..
Clergymen .....	86	1	Printers and Publishers.....	16	..
Coal and Ice.....	5	..	Quarrymen .....	2	..
Contractors and Builders.....	71	..	Radio Men and Dealers.....	1	..
Dairymen .....	7	..	Railway, Etc. ....	71	1
Decorators and Painters.....	16	..	Real Estate .....	35	..
Dentists .....	16	..	Retired .....	238	2
Designers .....	..	..	Roofers and Tinnners.....	2	..
Detectives .....	1	..	Rubber Workers .....	5	..
Druggists and Pharmacists.....	19	2	Salesmen .....	87	1
Dry Cleaners and Pressers.....	3	..	School Officials .....	87	..
Editors and Newspapermen.....	7	..	Scientists .....	1	..
Electricians .....	7	..	Shoeworkers and Repairers.....	4	..
Engineers (Prof.) .....	63	..	Social Workers .....	..	..
Engineers (Stat.) .....	4	1	Tailors and Seamstresses .....	11	..
Farmers and Ranchers.....	545	8	Taxidermists .....	..	..
Filling Station Operators.....	6	..	Telegraph and Telephone.....	8	..
Florists, Gardeners, Nurserymen..	12	1	Theater .....	1	..
Foremen .....	17	2	Toolmakers .....	5	..
Fruit Dealers .....	6	..	Traffic Managers .....	..	..
Furniture Dealers .....	4	..	Transfer and Storage.....	6	..
Furriers .....	1	..	Undertakers .....	6	..
Garage and Repairing.....	3	..	Upholsterers .....	2	..
Gas and Fuel.....	3	..	Veterinarians .....	3	..
Glassworkers .....	1	..	Violin Makers and Repairers.....	1	..
Government, State, City.....	105	..	Watchmen .....	4	..
Grain, Hay, Lumber.....	21	..	Weavers .....	..	..
Grocers .....	13	1	Well Drillers .....	1	..
Hotel, Restaurant Owners.....	6	..	Wholesale .....	2	..
Inspectors .....	5	..	Wiredrawers .....	1	..
Insurance .....	44	..	Y. M. and Y. W. C. A. and Social Workers .....	3	..
Interior Decorators .....	3	..	Mothers with no occupation.....	317	..
Iron and Steel Workers.....	22	..	None Given or Deceased.....	1,091	12
Janitors .....	11	..			
Jewelers .....	6	..			
Jobbers .....	1	..	Total.....	3,871	43

# SUMMARY YEAR 1929-30

## OCCUPATIONAL CENSUS OF PARENTS AND GUARDIANS FOR ACADEMIC YEAR 1929-30

Accountants, Clerks, Bookkeepers.....	285	Iron and Steel Workers.....	122
Advertising .....	29	Janitors .....	26
Apiarists .....	1	Jewelers .....	47
Architects, Draftsmen .....	36	Jobbers .....	12
Army and Navy.....	16	Junk Dealers .....	10
Artisans .....	45	Laborers .....	96
Attorneys, Judges, Statesmen.....	186	Landscape Gardeners .....	12
Auctioneers .....	3	Laundrymen .....	9
Automobile Dealers .....	41	Lecturers .....	2
Aviators .....	1	Librarians .....	4
Bakers and Confectioners.....	44	Liverymen and Teamsters.....	18
Bankers .....	95	Livestock Dealers .....	22
Barbers and Beauty Culture.....	57	Machinists .....	126
Baseball Players .....	3	Manufacturers .....	163
Blacksmiths .....	19	Mechanics .....	93
Bookbinders .....	3	Merchants .....	594
Brokers .....	48	Millers .....	21
Business .....	126	Mine Operators, etc. ....	46
Business Executives, Etc.....	490	Missionaries .....	4
Butchers and Meat Dealers.....	35	Musicians and Artists.....	21
Cantors .....	4	Oil Producers .....	51
Carpenters and Cabinet Makers.....	131	Opticians and Optometrists.....	9
Chauffeurs .....	2	Osteopaths and Chiropractors.....	6
Chefs, Cooks, Caterers.....	18	Photographers .....	11
Chemists .....	17	Physicians, Surgeons, Nurses .....	237
Chiroprodists .....	2	Plasterers .....	10
Clergymen .....	145	Plumbers .....	31
Coal and Ice.....	36	Potters .....	18
Contractors and Builders.....	286	Poultrymen .....	11
Dairymen .....	39	Printers and Publishers.....	70
Decorators and Painters.....	62	Quarrymen .....	7
Dentists .....	71	Radio Men and Dealers.....	5
Designers .....	11	Railway, etc. ....	372
Detectives .....	2	Real Estate .....	210
Druggists and Pharmacists.....	79	Retired .....	349
Dry Cleaners and Pressers.....	21	Roofers and Tanners.....	11
Editors and Newspapermen.....	26	Rubber Workers .....	15
Electricians .....	42	Salesmen .....	481
Engineers (Prof.) .....	208	School Officials .....	255
Engineers (Stat.) .....	101	Scientists .....	1
Entomologists .....	1	Shoemaker and Repairs .....	31
Farmers and Ranchers.....	1,284	Social Workers .....	8
Filling Station Operators.....	10	Students .....	1
Fishermen .....	1	Tailors and Seamstresses .....	83
Florists, Gardeners, Nurserymen.....	72	Taxidermists .....	1
Foremen .....	119	Telegraph, Telephone .....	50
Fruit Dealers .....	20	Theater .....	17
Furniture Dealers .....	21	Toolmakers .....	6
Furriers .....	11	Traffic Managers .....	13
Garage and Repairing.....	33	Transfer and Storage .....	22
Gas and Fuel.....	16	Undertakers .....	21
Glassworkers .....	12	Upholsterers .....	3
Golf, Professional .....	5	Veterinarians .....	20
Government, State, City.....	347	Violin Makers and Repairers.....	2
Grain, Hay, Lumber.....	59	Watchmen .....	11
Grocers .....	112	Weavers .....	3
Hotel, Restaurant Owners.....	55	Well Drillers .....	2
Importers .....	3	Wholesale .....	33
Inspectors .....	29	Wiredrawers .....	3
Insurance .....	150	Y. M., Y. W. C. A. and Social Workers..	9
Interior Decorators .....	14	Mothers with no occupation.....	1,043
Inventors .....	2	None given or deceased.....	1,581
		Total.....	11,813



## SUMMARY YEAR 1929-30\*

## ENROLLMENT BY STATES AND COUNTRIES FOR FISCAL YEAR 1929-30

Alabama .....	6	Hawaii .....	4	New York .....	128
Argentine Rep. ....	3	Idaho .....	1	North Carolina .....	14
Arizona .....	1	Illinois .....	59	North Dakota .....	3
Arkansas .....	4	India .....	2	Ohio .....	13,223
Australia .....	1	Indiana .....	100	Oklahoma .....	5
Austria .....	1	Iowa .....	21	Oregon .....	4
Bermuda Islands .....	1	Japan .....	5	Pennsylvania .....	217
California .....	6	Java .....	....	Peru .....	1
Canada .....	10	Kansas .....	17	Philippine Islands .....	8
Canal Zone .....	2	Kentucky .....	35	Porto Rico .....	7
Colombia, S. A. ....	52	Korea .....	....	Rhode Island .....	2
Colorado .....	1	Louisiana .....	5	South Carolina .....	9
Connecticut .....	4	Maine .....	4	South Dakota .....	4
Cuba .....	23	Maryland .....	5	Spain .....	....
Czechoslovakia .....	1	Massachusetts .....	33	Tennessee .....	15
Delaware .....	2	Mexico .....	....	Texas .....	16
Dist. of Columbia .....	11	Michigan .....	29	Turkey .....	....
Dominican Rep. ....	1	Minnesota .....	11	Utah .....	2
England .....	1	Mississippi .....	7	Vermont .....	2
Ethiopia .....	17	Missouri .....	18	Virginia .....	20
Florida .....	4	Montana .....	1	Virgin Islands .....	1
France .....	17	Nebraska .....	6	Washington .....	7
Georgia .....	4	New Hampshire .....	8	West Virginia .....	148
Germany .....	1	New Jersey .....	114	Wisconsin .....	14
		New Mexico .....	1	Wyoming .....	3

Total..... 14,495

\* Including Autumn, Winter, and Spring Quarters, number in Summer Quarter and Lake Laboratory who did not return during the current year, and the Winter Course in Agriculture.

## SUMMARY YEAR 1929-30

## ENROLLMENT BY STATES AND COUNTRIES FOR ACADEMIC YEAR 1929-30

Alabama .....	4	Hawaii .....	4	New York .....	122
Argentine Rep. ....	3	Idaho .....	1	North Carolina .....	9
Arizona .....	1	Illinois .....	41	North Dakota .....	3
Arkansas .....	4	India .....	1	Ohio .....	10,736
Australia .....	1	Indiana .....	79	Oklahoma .....	4
Austria .....	1	Iowa .....	15	Oregon .....	4
Bermuda Islands .....	1	Japan .....	5	Pennsylvania .....	187
California .....	6	Java .....	....	Peru .....	1
Canada .....	9	Kansas .....	16	Philippine Islands .....	8
Canal Zone .....	2	Kentucky .....	29	Porto Rico .....	7
China .....	48	Korea .....	....	Rhode Island .....	2
Colombia, S. A. ....	1	Louisiana .....	4	South Carolina .....	9
Colorado .....	2	Maine .....	4	South Dakota .....	4
Connecticut .....	22	Maryland .....	2	Spain .....	....
Cuba .....	1	Massachusetts .....	30	Tennessee .....	12
Czechoslovakia .....	1	Mexico .....	....	Texas .....	8
Delaware .....	2	Michigan .....	27	Turkey .....	....
Dist. of Columbia .....	9	Minnesota .....	10	Utah .....	2
Dominican Rep. ....	1	Mississippi .....	5	Vermont .....	2
England .....	1	Missouri .....	15	Virginia .....	16
Ethiopia .....	11	Montana .....	1	Virgin Islands .....	1
Florida .....	4	Nebraska .....	5	Washington .....	6
France .....	2	New Hampshire .....	8	West Virginia .....	103
Georgia .....	2	New Jersey .....	114	Wisconsin .....	12
Germany .....	1	New Mexico .....	1	Wyoming .....	3

Total..... 11,813

## SUMMARY YEAR 1929-30

ENROLLMENT BY STATES AND COUNTRIES FOR SUMMER QUARTER AND  
LAKE LABORATORY 1929

	S.Q. L.L.		S.Q. L.L.		S.Q. L.L.
Alabama .....	3 ..	Hawaii .....	.. ..	New York .....	14 ..
Argentine Rep. ....	.. ..	Idaho .....	1 ..	North Carolina ...	6 ..
Arizona .....	.. ..	Illinois .....	15 ..	North Dakota .....	.. ..
Arkansas .....	.. ..	India .....	1 ..	Ohio .....	3,575 37
Australia .....	1 ..	Indiana .....	31 ..	Oklahoma .....	1 ..
Austria .....	.. ..	Iowa .....	8 ..	Oregon .....	2 ..
Bermuda Islands ..	.. ..	Japan .....	1 ..	Pennsylvania .....	39 1
California .....	2 ..	Java .....	.. ..	Peru .....	.. ..
Canada .....	3 ..	Kansas .....	9 ..	Philippine Islands..	1 ..
Canal Zone .....	.. ..	Kentucky .....	10 1	Porto Rico .....	.. ..
China .....	19 ..	Korea .....	.. ..	Rhode Island .....	.. ..
Colombia, S. A. ....	.. ..	Louisiana .....	1 ..	South Carolina .....	.. ..
Colorado .....	2 ..	Maine .....	.. ..	South Dakota .....	.. ..
Connecticut .....	.. ..	Maryland .....	3 1	Spain .....	.. ..
Cuba .....	.. ..	Massachusetts ..	3 ..	Tennessee .....	3 ..
Czechoslovakia ....	1 ..	Mexico .....	.. ..	Texas .....	9 1
Delaware .....	.. ..	Michigan .....	5 ..	Turkey .....	.. ..
Dist. of Columbia..	3 ..	Minnesota .....	.. ..	Utah .....	1 ..
Dominican Rep. ....	.. ..	Mississippi .....	3 ..	Vermont .....	.. ..
England .....	.. ..	Missouri .....	6 ..	Virginia .....	7 ..
Ethiopia .....	.. ..	Montana .....	.. ..	Virgin Islands .....	.. ..
Florida .....	7 ..	Nebraska .....	1 1	Washington .....	1 ..
France .....	1 ..	New Hampshire ..	.. ..	West Virginia ....	59 1
Georgia .....	3 ..	New Jersey .....	6 ..	Wisconsin .....	4 ..
Germany .....	.. ..	New Mexico .....	.. ..	Wyoming .....	.. ..
				Total .....	3,871 43



## GRADUATE SCHOOL

*Dean, WILLIAM MCPHERSON*

The following report contains a brief history of the Graduate School for the academic year 1929-30. Inasmuch as an extended report prepared by the Graduate Council bearing on matters of vital interest to the graduate work of the University has been printed in pamphlet form during the year and is available to all interested, the present report will be made as brief as possible.

### SOME GENERAL STATEMENTS CONCERNING THE GRADUATE STUDENT BODY

The registration in the Graduate School for the year 1929-30 was 2,444—an increase of nearly 400 over the preceding year. The students registered represented 283 different colleges and universities, 41 of which are located in Ohio. Moreover, of the 2,444 students registered in the Graduate School during the academic year, practically three-fourths, or, to be more exact, 1,865, were graduates of Ohio colleges. Of these, our own University contributed the largest number, namely, 835, which is practically one-third of the total registration. Following our own University in the number of graduate students registered, are the following: Ohio University, 126; Ohio Wesleyan University, 118; Muskingum College, 72; Otterbein College, 70; Ohio Northern University, 66; Miami University, 51; College of Wooster, 47; Wittenberg College, 42; Denison University, 38; Bluffton College, 34; Oberlin College, 32; Capital University, 32; Kent State College, 31. The out-of-state universities most largely represented are the University of Illinois, 24; Manchester College, 23; The University of Chicago, 14; University of Wisconsin, 13; West Virginia University, 12; University of Kentucky, 10.

Included in the personnel of the graduate student body were the following: graduate assistants in The Ohio State University, 163; assistants (or instructors) in The Ohio State University, 323; members of the instructional staff of Ohio colleges, 129; members of the instructional staff of out-of-state colleges, 74; teachers in the elementary and secondary schools of Columbus, 217; teachers in the elementary and secondary schools outside of Columbus, 615; principals of elementary or secondary schools, 137; school superintendents, 135; instructors in teachers' colleges and normal schools, 18; persons employed in state institutions, 32; persons connected with United States bureaus, 13; fellows and scholars, 59; ministers, 7; professional business men, 37; foreigners, 40; and miscellaneous, 445.

### THE DISTRIBUTION OF GRADUATE STUDENTS BY DEPARTMENTS

The distribution of the graduate students among the different departments is of general interest because, to some extent at least, it is an indication of the relative demands of graduate students for the different fields of learning. The following table gives a list of the number of students majoring in the different departments in the Summer Quarter, and also gives the net total for the entire academic year.

DISTRIBUTION BY DEPARTMENTS OF GRADUATE STUDENTS  
FOR THE YEAR 1929-30

Department	Summer Quarter	Total for the Four Quarters
Accounting .....	3	7
Agricultural Chemistry .....	5	15
Agricultural Education .....	10	11
Agricultural Engineering .....	0	2
Anatomy .....	0	6
Animal Husbandry .....	2	5
Bacteriology .....	11	19
Botany .....	30	46
Business Organization .....	12	36
Ceramics .....	0	4
Chemical Engineering .....	17	30
Chemistry .....	78	130
Civil Engineering .....	1	5
Dairying .....	0	2
Economics .....	14	36
Electrical Engineering .....	4	7
English .....	182	194
Farm Crops .....	1	1
Fine Arts .....	6	16
Geography .....	5	11
Geology .....	1	9
German .....	3	9
History .....	135	169
History of Education .....	7	9
Home Economics .....	41	54
Horticulture .....	2	10
Industrial Arts Education .....	34	46
Industrial Engineering .....	2	4
Journalism .....	0	1
Latin .....	13	18
Mathematics .....	29	42
Mechanics .....	0	1
Metallurgy .....	0	1
Mineralogy .....	0	3
Music .....	6	9
Philosophy .....	10	22
Physics .....	27	46
Physiological Chemistry .....	0	4
Physiology .....	1	14
Political Science .....	16	30
Poultry Husbandry .....	1	1
Principles of Education .....	150	183
Psychology .....	86	143
Public Health .....	0	2
Romance Languages .....	1	1
French .....	17	28
Spanish .....	8	16
Rural Economics .....	3	20
School Administration .....	362	416
Sociology .....	27	59
Soils .....	2	10
Veterinary Medicine .....	2	6
Vocational Education .....	5	6
Zoölogy and Entomology .....	59	103
Special Students .....	176	366
TOTAL .....	1,557	2,444



## A REPORT SUBMITTED TO THE FACULTY BY THE GRADUATE COUNCIL

During the past year and a half a number of committees of the Graduate Council have been at work studying various questions bearing directly upon the development of the Graduate School and of the research work of the University. All together there were twelve of these committees, and their personnel included nearly forty members of our instructional staff who are vitally interested in the advanced work of the University. Each of these committees made a thorough investigation of the subject assigned to it and submitted an extended report. The important findings and recommendations of these committees were submitted to the University Faculty at its regular May meeting, in the form of a somewhat extended report. This report was published in the form of a bulletin and is therefore a matter of record. It is, then, unnecessary, as important as the report proved to be, to discuss it here in detail since the bulletin is available to all those interested. The report contained fifteen recommendations, all of which, with a single exception and that a minor one, were adopted by the University Faculty and have since been approved by the Board of Trustees of the University.

The report stressed especially the importance, not only of retaining under all conditions the outstanding scholars now members of the instructional staff, but of adding to this list whenever vacancies occur; of giving such scholars complete freedom; and of providing adequate equipment and facilities in all the fields in which graduate work is offered.

## PUBLICATIONS ISSUED BY THE GRADUATE COUNCIL

The following publications have been issued by the Graduate Council during the academic year 1929-30:

(1) *Report of Research Work Completed or in Progress during the Academic Year Ending June 30, 1929.* This bulletin of 135 pages contains a brief statement of the research work either completed or in progress during the academic year ending June 30, 1929. It gives a brief account of the research work of nearly five hundred members of our instructional staff and of graduate students working under their guidance. It is proposed to issue these reports at intervals of one or two years, as the funds available permit.

(2) *A Statement of Various Proposed Research Projects Submitted by Different Departments of the University* (Published May, 1930). This bulletin was prepared with two objects in view. In the first place, the Graduate Council believed it would add to the research spirit of the University if the different departments were to map out a major research program extending over a number of years, and in this way fix a goal toward which their activities could be directed. In the second place, it was thought that the bulletin might prove helpful to the members of the Alumni Research Council, recently organized for the purpose of raising funds for the endowment of research in the University. The bulletin contains a statement of 308 different projects and includes a brief explanation of each project, together with an estimate of the cost required for carrying out the work.

(3) A Monograph entitled, *The Behavior of the Newborn Infant*, by Karl Chapman Pratt, Amalie Kraushaar Nelson, and Kuo Hua Sun, working under the direction of Professor Albert P. Weiss and Professor Andrews Rogers. This is a bulletin of 237 pages and contains an account of the work carried on by certain graduate students under the direction of Professor Weiss. In the investigation Professor Weiss had placed at his disposal the resources of the Starling-Loving Hospital and the coöperation of Dr. Andrews Rogers, Professor of Obstetrics. The investigators had unusual opportunities for carrying on the work and there is no question but that the results, as printed in the bulletin, constitute an outstanding contribution to the subject of investigation.

(4) *Civil War Prisons: A Study in War Psychology*, by William Best Hesselstine (Ph.D., The Ohio State University, 1928). This is a book of 290 pages which contains the results of Mr. Hesselstine's investigations concerning Civil War prisons and constitutes an interesting volume that any student of American history should read to understand the true situation.

(5) *A History of the Military Obligation in Mediaeval England with Special Reference to Commissions of Array*, by Professor Arthur H. Noyes. This book is now in press.

The Graduate Council finds itself greatly handicapped in the printing of monographs due to the appreciably increased cost of printing during the recent years, and to the limited amount of money available for publications. Some assistance will result through the permission recently obtained to establish a rotary fund for the publication of monographs. A limited number of sales always follows the publications, and it is hoped to increase these sales and thus make available sufficient funds for the publication of an increased number of monographs. At present the Council is able to print only a small percentage of the manuscripts deserving of publication.

#### NON-RESIDENT LECTURERS

During the year the University has continued its long-time custom of bringing to the campus distinguished scholars for one or more lectures. The lectures sponsored by the Graduate School for the academic year 1920-30 are stated in the list below. In addition to the lectures, each of the lecturers met with members of the instructional staff and graduate students for at least one general conference. It is unnecessary to discuss the importance of these lectures in the development of a scholarly spirit on the University campus.

John Dewey, Professor of Philosophy, Columbia University—a series of five lectures. Subjects: "Attitudes and Facts: Philosophy and Science"; "Conflicts of Attitudes and Philosophies"; "The Individual and the Psychological Factor"; "Education and the Social Factor"; "The Autonomy of Education."

Shailer Mathews, Dean of the Divinity School of the University of Chicago—a series of five lectures on the general theme of "The Evolution of the Idea of God."

Enrico Bompiani, Professor in the University of Rome, visiting lecturer of the American Mathematical Society. Subject: "What is Geometry?"

Kasimir Fajans, Professor of Chemistry, University of Munich—a series of three lectures. Subjects: "The Deformation of Ions in Crystals and Molecules"; "Optical Investigations on Solutions of Strong Electrolytes"; and "The Adsorption of Ions on Crystals and Their Photochemical and Analytical Applications."

L. E. Melchers, Head, Department of Botany and Plant Pathology of the Kansas State Agricultural College—two lectures. Subjects: "Studies on the Kernel Smut of Sorghum," and "The Libyan Desert and Egyptian Oases." (Plant Institute.)

Karl Von Frisch, Professor in the University of Munich. Subject: "The Senses and Language of the Bees."

Benjamin F. Shambaugh, Professor in the State University of Iowa. Subject: "The Statesman of Democracy."

G. P. Thomson, Professor of Natural Philosophy at Aberdeen University—a series of three lectures. Subject: "Electron Waves."

Tibor Rado, of Hungary, visiting lecturer in Mathematics at Harvard University. Subject: "Problem of Plateau."

E. Allison Peers, Professor in the University of Liverpool. Subject: "The Real Blasco-Ibañez."



Sylvanius G. Morley, of the Carnegie Institution of Washington. Subject: "The Archaeological Investigations of the Carnegie Institution at Chichen-Itza, Yucatan, Mexico, and Uaxactum, Guatemala."

Franco B. Averardi, Professor in the University of Florence, Italy. Subject: "Famous Women of the Renaissance."

Gustav Kafka, of Dresden, Germany—two lectures. Subjects: "The Broader Sense of Comparative Psychology," and "The Principles of Evolutionary Psychology."

Robert S. Conway, Professor of Latin, University of Manchester. Subject: "Ancient Empires and the Modern World."

Gilbert Chinard, Professor in Johns Hopkins University, Subject: "Jefferson in French Thought."

Louis Untermeyer, American poet and critic. Subject: "Modern Poets and Their Poetry."

#### THE \$10,000 FUND FOR RESEARCH ASSISTANTS

The Graduate Council was given a fund of \$10,000 to be spent for assisting members of the instructional staff in carrying on important research work in progress. The demand for appropriations from this fund far exceeded the amount available, but every effort was made to help as many as possible of those whose research work seemed to the Graduate Council to be worthy of assistance. No award was made without personal interviews. At the end of the year each one receiving aid reported to the Council concerning the results accomplished. There follows a list of the persons receiving appropriations from the fund, together with a brief statement of the research for which the fund was used.

Frederic C. Blake, Department of Physics.....\$825  
Subject of research: "The Crystal Structure of Certain Chromium-Nickel Alloys"

The results show that in these alloys there are four phases present in the melt. One body centered chromium; two, hexagonal chromium nitride and three and four chromium nickelide either both tetragonal with an axial ratio close to unit or one tetragonal and the other cubic.

Cecil E. Boord, Department of Chemistry.....\$500  
Subject of research: "The Synthesis of Certain Organic Compounds"

The grant was used for the employment of research assistants who prepared certain organic compounds that were necessary for the prosecution of study. As a result of the work two papers have been completed, one dealing with the synthesis of certain olefines and the other with the synthesis of three unknown hexenes. These results were reported before the Organic Division of the American Chemical Society at the Atlanta meeting.

John B. Brown, Department of Physiological Chemistry.....\$300  
Subject of research: "A Study of the Fatty Acids Present in Certain Tissues"

The grant was used for the employment of a research assistant, who made, in all, over five hundred quantitative determinations. The results of Mr. Brown's study have been set forth in three papers as follows: (1) "The Effect of Feeding Menhaden (fish) Oil on the Secretion of Milk and the Composition of Butter Fat in the Dairy Cow"; (2) "The Nature of the Highly Unsaturated Fatty Acids Stored in the Lard from Pigs, Fed on Menhaden Oil"; (3) "A Comparison of the Highly Unsaturated Fatty Acids of Beef, Sheep, and Hog Brains." The above papers have been sent in for publication and will appear in due time.

Arthur C. Cole, Department of History..... \$300

Subject of research: "A Social History of the United States"

The grant was used for the employment of an assistant to check quotations, footnote references, etc. The larger amount of this work is now in final form. It constitutes one of the volumes on American history published under the direction of Arthur M. Schlesinger of Harvard University.

Dwight M. DeLong, Department of Zoology and Entomology..... \$300

Subject of research: "Some Fundamental Problems in the Use and Action of Copper as an Insecticide in the Form of Bordeaux Mixture"

The grant was used in the employment of research assistants. As a result of the investigation Mr. DeLong has presented two reprints of papers published in the Journal of Economic Entomology. The one entitled, "The Plant as a Factor in the Action of Bordeaux Mixture," and the other, "The Toxicity of Copper to the Potato Leaf Hopper."

Charles W. Foulk, Department of Chemistry..... \$150

Subject of research: "The Study of Foams and Their Bearing in Ore Flotation and in the Priming of Steam Boilers"

The money was spent in the employment of a research assistant. Mr. Foulk has submitted two papers as evidence of his activities in his study of the above problem. In one of these is formulated a general theory of film formation which is of fundamental importance from both a scientific and an economic standpoint.

Wesley G. France, Department of Chemistry..... \$750

Subject of research: "Certain Reactions of Liquid Ammonia"

The grant was used for the employment of a research assistant. Among the results accomplished are the following: Apparatus has been designed and constructed (1) for the study of systems in liquid ammonia; (2) for determining the quantitative solubility of substances in liquid ammonia; (3) for the study of systems in liquid ammonia by the use of the ultramicroscope; (4) for filtering liquid ammonia solutions. Methods developed for preparing gold sols in liquid ammonia, at its boiling point, have been studied.

Waldo S. Glock, Department of Geology..... \$100

Subject of research: "The Development and History of Drainage Systems"

The grant was used for employing a draftsman for the purpose of preparing certain charts. The results have been collected in the following papers: (1) "The Development of Drainage Systems," read before the Geological Society of America at its meeting in December, 1929; (2) "The Dual Nature of Physiography" (in press); (3) "The Development of Drainage Systems—A Synoptic View." This also is in press.

Harry G. Good, Department of History of Education..... \$200

The grant was used for the employment of a research assistant to aid Mr. Good in his study of "The History of English Spelling and Its Teaching." The results will be published in book form.

Leonard W. Goss, College of Veterinary Medicine..... \$300

Subject of study: "Sterility in Cattle"

The grant was spent in the employment of an assistant who aided Mr. Goss in collecting and making examinations of over seventy specimens. Some of the results will be presented at the coming meeting of the Veterinary Medical Association. It is believed that valuable information bearing on this important problem has been obtained.

William A. P. Graham, Department of Geology..... \$100

Subject of research: "The Determination of the Condition under Which Certain Sandstones and Shales are Deposited"

The grant was spent for aid in the preparation of the rock specimens for study. The problem is an extensive one and is still under investigation. The results so far show that there is a marked mineralogical difference between the formations under investigation which can be used in making important correlations as the work progresses.



Fred A. Hitchcock, Department of Physiology..... \$400  
 Subject of research: "A Study of Certain Problems Connected with Metabolism"

Mr. Hitchcock presented as a result of his work three reprints: one on the "Cyclic Variations in the Basal Metabolic Rate of Women," printed in the *Journal of Nutrition*; one on the "Variation in the Basal Metabolic Rate Apparently Caused by the Mental State of the Subject," printed in the *American Journal of Physiology*; and one on "The Effect of the Luxus Consumption of Meat Upon the Kidney of the Albino Rat," published in the *Proceedings of the Society for Experimental Biology and Medicine*.

Paul C. Kitchin, College of Dentistry..... \$100

Subject of research: "The Relative Efficiencies from a Bacteriological Standpoint of Various Germicides Used in the Treatment of Putrescent Root Canals"

Mr. Kitchin presented a complete report of all his investigations. The result of the entire investigation led to the conclusion that the most effective and at the same time least irritating of the root canal therapeutics studied is beech-wood creosote.

Carl A. Norman, Department of Mechanical Engineering..... \$300

Subject of research: "A Study of the Influence of Modern Production Methods on Mechanical Design"

The grant was used for assistants to obtain information concerning the manufacturing practices of different industrial concerns and their influence on the design of machinery. The results of the study, which is now practically completed, will be printed in book form.

Roderick Peattie, Department of Geography..... \$300

Subject of research: "Certain Problems on the General Subject of Mountain Geography"

The grant was used in employing an assistant for helping with the bibliography bearing on this subject. Mr. Peattie's study has already resulted in a number of published articles dealing on phases of mountain geography.

Milton O. Percival, Department of English..... \$600

Subject of study: "An Interpretation of the Works of William Blake"

The money was spent in employing an assistant to relieve Mr. Percival of a part of his routine duties. The results of the investigation, which has extended over a number of years, will be given in the form of a book of several hundred pages.

Luella Cole Pressey, Department of Psychology..... \$500

Subject of study: (1) "An Investigation of the Value of the Training in Reading"; (2) "An Investigation of the Value of the Training of Probation Students"; (3) "An Investigation of Certain Problems Connected with the Application of Tests"

The grant was used in the employment of research assistants. Important results have been obtained which will be of great service in dealing with probation students. Some of the tests have been completely revised and greatly improved.

G. Oscar Russell, Division of Phonetics..... \$1000

Subject of research: "A Study of the Physiological Causes of Voice Quality Differences"

The grant was used for the employment of two assistants. Among other important results accomplished was the development of an efficient device for taking X-ray photographs of the vocal cords in action. The data obtained show that many ideas long held regarding the action of vocal cords are erroneous. This work has attracted wide attention and has resulted in an additional appropriation of \$10,000 from the Carnegie Corporation to be used in continuing the study.

Homer C. Sampson, Department of Botany..... \$500

Subject of study: "The Composition of Certain Cell Walls of Plants"

The grant was used for a research assistant. Valuable data have been obtained bearing on the refinement of methods now used and the discovery of new ones, that make it possible to distinguish clearly between the several chemical constituents that appear in the wood wall during phases of its development.

Helen F. Schick, working under the direction of Samuel Renshaw, Department of Psychology..... \$75

Subject or research: "The Bi-manual Production of Rhythmic Patterns at Various Tempos"

All experimentation for this problem has been completed and about 75 per cent of the records have been tabulated. Twenty-nine subjects were used and each subject served for at least six trials, some serving for thirty trials. Definite results of great interest have been obtained.

Wilbur H. Siebert, Department of History..... \$700

Subject of research: "The History of Florida during the Revolutionary Period"

The grant was used for the employment of research assistants to obtain data from various libraries. Mr. Siebert has presented to the Graduate Council the results of his study in the form of two large volumes published by the Florida State Historical Society, entitled *Loyalists in East Florida, 1774-1785*.

Lewis N. Simes, College of Law..... \$225

Subject of study: "The Law of Future Interests in Property"

The grant was spent in the employment of a research assistant. The results of Mr. Simes' extended study will be published in a treatise on "Future Interests."

Wilmer G. Stover, Department of Botany..... \$75

Subject of study: "Diseases of the Tomato Plant"

The grant was used for the employment of a student who assisted in the preparation and in the care of the apparatus required in the investigation. As a result of this study methods have been found for controlling certain diseases of the plant.

Herbert A. Toops, Department of Psychology..... \$400

The grant was used in employing two part-time stenographic assistants. Among the results accomplished are: (1) the preparation of five chapters of the Intelligence Test Monograph; (2) the preparation of a report on "Special Abilities" submitted to one of the conferences of the National Research Council; (3) records obtained of a large number of the intelligence records of the past ten years; (4) typing of a number of chapters on a book on statistics that will be ready for the press this summer.

Willard L. Valentine, Department of Psychology..... \$400

The grant given Mr. Valentine has resulted in the following accomplishments: (1) finished, a paper for publication which was started last year—"A Study of Learning Curves: I, The Application of Meyer's Arc Cotangent Function and Thurstone's Hyperbola in the Maze Performance of White Rats"; (2) a new paper worked out entirely this year—"A Study of Learning Curves: II, The Relation between the Arc Cotangent Function and the Hyperbola"; *Jour. Gen. Psychol.* (in press); (3) the development of an entirely new equation for the learning function based on our studies for the past four years—"A Study of Learning Curves: III, The Relationship between a Growth Curve and the Arc Cotangent Function"; *Jour. Gen. Psychol.* (in press).

Albert B. Wolfe, Department of Economics..... \$600

Subject of research: "An Extended Study of the Population Problem Since the World War"

This study involves the accumulation of an enormous amount of data. The grant given Mr. Wolfe was used for the employment of two trained research assistants to help assemble the data. One monograph on the subject has already been published. While this contained ninety pages, it is merely an outline of the work under investigation.



## RESEARCH APPARATUS FUND

The Committee on Appropriations set aside, upon the recommendation of the Graduate Council, a fund of \$1,928.30 to be spent for special research apparatus. This fund was spent as follows:

Department of Botany (request of Mr. Edgar N. Transeau), for a Rotary Microtome.....	\$216.00
Department of Chemistry (request of Mr. Edward Mack, Jr.), for a 220-Volt d.c. Motor Generator and Truck.....	389.50
Department of Chemistry (request of Mr. Edward Mack, Jr.), for materials to be used in the construction of an infra-red spectro-scope.....	244.24
Department of Geography (request of Mr. Roderick Peattie), for two Tycos Altitude Barometers.....	69.45
Department of Geology (request of Mr. J. Ernest Carman), for a Cutting Machine for rock sections.....	600.00
Department of Physics (request of Mr. Frederic C. Blake), for an Auto Transformer and a Concave Mirror of special form.....	163.75
Department of Psychology (request of Mr. George F. Arps), for a Cathode-Ray Oscillograph and a Thermocouple (part-payment only) .....	166.36
Department of Zoology and Entomology (request of Mr. David F. Miller), for Special Thermostat and two Immersion Heaters..	29.00
Department of Zoology and Entomology (request of Mr. Alvah Peterson), for a Paulin System Barometer.....	50.00

The only comment called for in reference to the above appropriation is that it is extremely limited in amount. Fortunately, this sum represents only a small percentage of the money used for the purchase of research apparatus by the University during the year. The Graduate Council could easily and wisely have spent \$100,000 for this purpose and still not have met the demands. The greatest advance, from the standpoint of efficiency, made in recent years concerning the purchase of research apparatus, is the recent action of the Faculty—and its approval by the Board of Trustees—to the effect that in the future the expenditure of all funds appropriated for the purchase of research apparatus shall be subject to the recommendation of the Graduate Council. The Council, better than any other body, is able to evaluate the needs of the University as a whole for research apparatus and is thus able to make a wise distribution of the funds and to follow up the purchase of apparatus with a view to seeing whether it meets the needs of the University.

## THE LIBRARY FUND

At the beginning of the academic year the Library Council set aside a sum of \$10,000 to be spent upon the recommendation of the Graduate Council for sets of books of special importance to the students in the conduct of their research work. This fund has been carefully husbanded and allowances made from it only after thorough investigation by the Library Committee of the Graduate Council. An account of the purchases made from this fund will be given in detail by the Librarian of the University in his report to the President and Board of Trustees, so that it is unnecessary to duplicate this information here. So much has been said in various reports concerning the needs of the Library that I hesitate to add anything further. I will only refer to the report submitted by the Graduate Council to the University Faculty, pages 23 ff., in which this whole subject is discussed in considerable detail.

## OUTSTANDING EVENTS OF THE YEAR

In reviewing the history of the Graduate School for the year, one naturally seeks to select those events which impress one as having special significance. Briefly summarizing these, I may add that our instructional staff has been greatly strengthened by the addition of a number of distinguished scholars. Marked additions have been made to our Library and to the equipment of our laboratories. The research work has been furthered by grants making possible the employment of research assistants, while the sympathetic attitude of the administration toward the higher work of the University has been very encouraging. As a result there has been a constant growth of the spirit of scholarly work and research activities during the year, which has catalyzed the entire work of the University. There is still much to be desired, but in realizing our needs, one must appreciate the fact of our steady progress in the field of graduate work.

In submitting this report, the Dean wishes to express his great appreciation to those who have given their time so freely to the consideration of all matters that pertain to the advancement of graduate study. The members of the newly organized Graduate Council have responded to every request, and many of them have given much valuable time to the solution of problems confronting the Council. I am especially indebted to the members of the Executive Committee, W. W. Charters and Frederick E. Lumley, as well as to Carl Wittke, for much valuable assistance. Mr. Wittke gave special help in the preparation of the bulletin embodying the report of the Council to the University Faculty. It is a great privilege, as well as a great joy, to work with such men, and I express my deepest appreciation for this privilege.



## COLLEGE OF AGRICULTURE

Dean: ALFRED VIVIAN

### STUDENT ENROLLMENT

The enrollment of students in the regular courses of the College shows a slight increase over that of last year, and is as follows:

Four-year courses in Agriculture.....	561
Four-year courses in Home Economics.....	359
Winter Courses.....	70
Total.....	990

The four-year courses show an increase of 57 over last year and the Winter courses show a decrease of 48.

### OTHER ACTIVITIES ON THE CAMPUS

Every year brings an increasing demand for special short courses, conferences, and other services to be rendered to groups that meet on the campus. In some cases these meetings result from the initiative of the faculty, and in others they are the result of urgent requests from the outside. The following is a list of such meetings held during the year with a statement of the attendance.

<i>Kind of Meeting</i>	<i>Attendance</i>
Farmers' Week.....	7,402
School in Poultry Judging.....	60
Annual Jersey Sale and Show.....	600
Brown Swiss Sale.....	300
Picnic of 100-Bushel Corn Club.....	75
Grange Lecturers' Short Course.....	110
Extension Conference .....	240
4-H Club Congress.....	481
Home Economics Extension Conference.....	50
Apple Judging Contest.....	315
Rural Service Men's Conference.....	77
Judging Contest for Vocational Students.....	1,800
Vegetable Growers' Short Course.....	16
Short Course for Nurserymen.....	35
Fruit Growers' Short Course.....	39
Commercial Florists' Short Course.....	100
Flower Garden School.....	30
Canners' Conference .....	60
Lumber Usage Course.....	35
4-H Club Picnics.....	4,000
Total.....	15,825

### RESEARCH

A review of the departmental statements in regard to research indicates a very healthy growth in this field. The increased cooperation during the year between the College of Agriculture and the Experiment Station has mate-

rially strengthened our research program. It is expected that the scope of this cooperative arrangement will be widened during the coming year.

#### EXTENSION SERVICE

The law requires that a report of the Agricultural Extension Service be made at the end of the calendar year. The report for 1929 has been presented to the President of the University as required. In addition to those on the regular extension staff, each member of the resident teaching staff does a limited amount of extension work. The College feels that some extension work on the part of the resident teacher is desirable since it keeps him in touch with the thought of the man in the field. As the resident teachers widen their circle of acquaintances in the state, the demand for their help becomes more insistent, so that every teacher, whether he will or not, becomes in a way an extension worker, if his resident teaching is inspiring.

#### THE FRESHMAN PROBLEM

Notable advance has been made during the year in the problem of freshman orientation. This matter will be found to be presented in some detail in the report of the Junior Dean, which is printed in full elsewhere.

#### DEPARTMENT OF AGRICULTURAL CHEMISTRY

The work of the department has progressed throughout the year without any interruptions except those due to regularly scheduled vacations. It was necessary again this year to accommodate in our laboratory during the Autumn and Winter quarters about 150 students from the Department of Analytical Chemistry, whose quarters in the new Chemistry Building were not equipped until during the Winter Quarter. This necessitated some crowding, but a spirit of cooperation and friendliness prevailed that made the situation as easy as possible.

We were particularly crowded during the Winter Quarter when 47 students enrolled for Agricultural Chemistry 601. We had available at that time only about 20 of the lockers equipped for such advanced students, so we had to assign what students we could to the vacant lockers in the general laboratory and turn away about 5 students for whom we had no lockers anywhere. A new desk containing 10 lockers for advanced students has been built during the Spring Quarter so that we shall be able to make better provision for our advanced courses next year.

Students in the College of Veterinary Medicine hereafter will be instructed in elementary organic and in analytical chemistry in this department. This change in plan will enable those students to get some experience with chemical quantitative measurements, something in which they have not had any formal instruction heretofore.

#### RESEARCH

During the year two students have completed dissertations for the Ph.D. degree.

Mrs. Maude N. Powell studied the metabolism of tricapyrin and trilaurin. Oscar F. Boyd studied the absorption of calcium soaps by the white rat. Five students expect to complete the requirements for the M.Sc. degree.



## PUBLICATIONS

The following papers have been accepted for publication:

The Absorption of Calcium Soaps by the White Rat, Proc. Exptl. Biol. and Med., O. F. Boyd and J. F. Lyman.

The Effects of the Ingestion of Tartrate or Sodium Aluminum Sulfate Baking Powder upon Growth, Reproduction, and Kidney Structure in the Rat, Amer. Jour. Hygiene, J. F. Lyman and Ernest Scott.

The Effect of the Habitual Use of Baking Powders upon the Digestibility of Food in the White Rat, Amer. Jour. Hygiene, Ruth Kraft.

## DEPARTMENT OF AGRICULTURAL EDUCATION

The activities of the department have been carried on by an abbreviated staff due to the absence of Professor W. F. Stewart, who has been on leave at Columbia University. The normal amount of itinerant teacher-training service was therefore reduced, and it was necessary to discontinue it entirely for the Spring Quarter. The enrollment in the classes has shown an increase over last year so that 30 per cent of the men graduates of the College this year have completed professional training for teaching vocational agriculture.

The policy of counseling students in the planning of their programs of courses so as to furnish a well-balanced technical training as well as a moderate amount of specialization in addition to the required professional courses, has been continued and emphasized. Each student electing to major in the department has been required to develop at once a tentative program for the remainder of his time in college. The tentative choices of courses and times of scheduling may, of course, be changed for adequate reasons; but the requirement for filing a definite program has tended to eliminate many difficulties in scheduling a well-balanced selection of courses, and to cause the student to become interested in building his program to best serve his future needs as a teacher.

The Junior Dean has furnished much valuable information concerning the personal and scholastic history of students, which has been filed in the department and used to advantage in counseling students. Having this information available when a student first registers his major has proved very advantageous. It makes personal interviews much more effective, and furnishes the beginning of a permanent record which is of value not only during the time when the student is in training but also in placement after graduation.

The work of the critic teachers in the training departments deserves commendation for the efforts put forth by these instructors to provide the student teachers with a great variety of experiences related to both the in-school and the out-of-school duties of the teachers of vocational agriculture. The assignment to student teachers of responsibilities that go with the organization and direction of the supervised farm practice of the high-school boys has been continued. In recognition of the increased emphasis on part-time and evening-class instruction in the vocational agriculture teachers' programs, provision has been made for some of the student teachers to participate in this type of teaching although it has not been possible for all of them to do so. A systematic presentation of the community service teaching programs in the training departments has also been emphasized. The outstanding points of superiority in the accomplishments in this field of the respective critic teachers have thus been brought to the attention of all of the student teachers.

The aim of the critic teacher is to give these prospective teachers as many experiences as possible which will be theirs when they take charge of departments of vocational agriculture themselves. The fact that the conditions under which the student teachers work are so nearly normal and the training therefore so direct and true to life, constitutes one important reason for the high rating of our training program by the agents of the Federal Board for Vocational Education and the supervisors and teacher trainers in other states. The fact that there have been no recent changes in the personnel of the staff of critic teachers has made possible the well-rounded development of programs of work which furnish very effective backgrounds for the training of prospective teachers.

#### RESEARCH

Progress in our program of research has been continued with some new studies undertaken.

The Measuring of Agricultural Progress in Swine Management and Poultry Management previously introduced by Professor Stewart has been continued by a number of teachers in the state. The results have been summarized by Professor Jackson and made available to teachers. The value of this type of information in connection with the organization of part-time and evening-school courses is apparent.

The study of Project Practices and Accounting is now in its third year, being conducted by the members of the staff with the assistance of the state supervisors. The direction this year has been by Professor Kenestrick. With the accumulation of the findings of three years, the value as a basis for instruction, particularly in the selection and conduct of supervised farm practice, is becoming more marked.

The study of records and reports of vocational agriculture, involving the determination of the necessary items on the basis of function or use, has been continued by Professor Stewart during his leave of absence. While this study is being made on a nation-wide basis, it has, of course, special value for use within the state.

The new research undertaken this year is in the investigation of the value of the ninety-minute period for instructional purposes in vocational agriculture. Professor Jackson has begun the field work for this study in connection with members of the staff of the Federal Board for Vocational Education.

In addition to the research conducted by the members of the staff themselves, several studies particularly in the field of part-time and evening-course instruction by graduate students from other states have been completed or are under way. Other research studies are being conducted by teachers of vocational agriculture in Ohio who are taking their major work in this department.

Members of the department are carrying assignment in the research program initiated by the North Central Regional group of supervisors and teacher trainers in vocational agriculture, Professor Stewart being a member of the general research committee, Professor Jackson of the Committee on Teacher Preparation, and Professor Kenestrick of the Committee on the Measurement of the Results of Instruction in Vocational Agriculture.

The Annual Vocational Agriculture Congress, including the meeting of the Future Farmers of America and the state judging contest, was continued this year with an attendance of 1,800 boys and their teachers. It was sponsored jointly by the department and the supervisory staff in the State Department



of Education. This event, in addition to serving the specific purposes implied in its name, brings many high-school students in contact with the possibilities open to them in the College of Agriculture.

### DEPARTMENT OF AGRICULTURAL ENGINEERING

The Department of Agricultural Engineering is one of the few departments on the campus which can have a complete change of equipment for class study each year. This is made possible by the loan arrangement we have with the manufacturers. Each year the department has an average memorandum charge for equipment loaned to it of \$35,000 to \$40,000. The interest charges and depreciation on the machinery are about 10 per cent of the loan value, aggregating about \$6,000, an expense which is borne by the manufacturers. Such loans are a result of the good will the department has with the large and influential manufacturers of farm equipment in the United States.

### RESEARCH

The following projects now under investigation are financed by the Ohio Agricultural Experiment Station:

1. Study of Power Requirements and Capacities of Large Farm Feed Grinders.—Silver.
2. Study of the Fertilizer Distribution about the Hill of Corn in Corn Planters.—Reed.
3. Study of the Flow of Water in the Drainage System of the Paulding County Farm.—Overholt.
4. Study of the Effect of Different Methods of Seed Bed Preparation on the Yield of Corn.—McCuen.
5. The Combine Harvester in Ohio, Its Efficiency and Its Effect on Farm Management Problems.—McCuen, Silver.
6. The Effect of Heating the Floors of Poultry Houses on Keeping Litter Dry in the Winter and Spring.—Stahl, Twitchell.
7. A Study of Soft Corn Storage.—Stahl.
8. A Design of Sweet Clover Crown Cutter.—Reed.
9. A Study of the Effect of Speed on the Rotary Hoe's Efficiency in Weed Control, also the Effect on Crop Damage of Soy Beans and Corn.—McCuen.
10. \*A Study of the Use of Electricity on the Marysville Experimental Line.—McCuen, Blauser.

These problems are of prime importance to the agricultural industry. The cost of production, a factor considered in practically all of the above problems, is given first consideration. Too much stress has been laid on production in the past and not enough on the controllable factor, cost of production. The progressive farmer of today is considering this factor as of major importance in the program of production. This is evidenced by his purchase of power and power equipment during the last two years.

### RURAL ELECTRIFICATION

It is quite evident that the East Central Division of the National Electric Light Association is satisfied with the work done by the Department of Agricultural Engineering on the problem of rural electrification, for they are ready

\* This project is made possible by a special fund provided by the East Central Division of the National Electric Light Association.

to enter into another contract with the University for a continuance of the study.

Last fall, October 25 and 26, the second annual Rural Service Men's Conference was held. This was quite as successful as the first one, held in November, 1928. The registration at the 1929 conference was 77. Leading men from utility companies, manufacturing companies, and university men from Illinois, Purdue, Michigan, and Ohio State presented papers. It was declared by the utility representatives that it was the best-balanced program they had ever attended at any of the divisional meetings.

#### PUBLICATIONS

G. W. McCuen: The Trend of Machinery in Agriculture, Farm Machinery and Hardware; Mechanizing of Agriculture, Boritor Farm Equipment and Methods magazine; The Marysville Line and What It Means to Utility Companies, Rural Service Men's Conference, Ohio State University; Electricity for Ohio Farms (co-author, Mr. I. P. Blauser), Extension Bulletin No. 96; The Future of Rural Electrification, paper given before N. B. L. A. Convention at Cleveland, to be published in N. B. L. A. Monthly.

C. O. Reed: Fighting the Corn Borer with Machinery in the Two-Generation Era, U. S. D. A. Bulletin for New England (in press); Problems Arising from the Application of Machinery in Agriculture, key-note speech in Agricultural Engineering presented at the Institute of Rural Affairs, Blacksburg, Virginia; The Use of Machinery in the Control of the European Corn Borer, presented at the Indiana Farmers' Week; Outline of Proposed Corn Planter Tests, Bi-monthly Bulletin, Ohio Agricultural Experiment Station, Wooster, Ohio. Also aided in layout and mechanical production of the College of Agriculture bulletin, What Would a College Education in Agriculture Mean to Me? and in planning division program of activities, A. S. A. E. convention, 1929.

E. A. Silver: Plows and Plowing, article for Farm Journal; Learn How to Plow, and To Just Plow or to Plow Well, articles for Progressive Farmer magazine; Combine Harvester Investigation, for forty-eighth Annual Report for Ohio Agricultural Experiment Station.

Virgil Overholt: A Manual of Sewage Disposal for Rural Dwellings, in coöperation with the State Department of Health (in press).

R. D. Barden: Three Extension bulletins: Farm Conveniences, Household Conveniences, and Farm Mechanics.

J. D. Bickie: Poultry Houses, Extension Bulletin. In coöperation with the Poultry Department.

I. P. Blauser: The following articles and talks on the general subject of rural electrification: one article each month for the East Central Division of the National Electric Light Association Monthly; talks for six farmers' institutes; talks for two utility company meetings; talks for community meeting at Alexandria; two talks for district county agents' meetings; two talks at Farmers' Week; three talks at rural service men's conferences; one talk at home demonstration agents' conference; Electricity on Ohio Farms, Bulletin 96 (co-author, G. W. McCuen); Consumption Data on the Marysville Experimental Line, mimeographed.

#### DEPARTMENT OF ANIMAL HUSBANDRY

At the beginning of the year all the work in Dairy Production was transferred to this department, and a number of new courses were offered in this field.

#### LIVE STOCK

Health of horses, cattle, sheep, and hogs has been good during the past year. Both the dairy and the beef herds have been maintained free of abortion



disease, but three reactors were taken out of the dairy herd on the last tuberculin test. Both calf and hog losses heretofore reported have been materially reduced.

The five barns are being operated on less labor outlay than ever and the work is being efficiently done. This is due to the caliber of the men heading up the work in each barn.

The inventory at the present time shows the following numbers of animals on hand:

Dairy Cattle .....	117
Beef Cattle .....	83
Horses .....	26
Sheep .....	200
Swine .....	168

The large number of prizes won at the Ohio State Fair, the International Livestock Exposition, and the National Swine Show indicate that the quality of the herds and flocks is constantly improving.

#### RESEARCH

The National Swine Record of Performance Project was initiated in the spring of 1930 in cooperation with other Agricultural Experiment Stations, by the Ohio State University and Agricultural Extension Service, working with the Ohio Agricultural Experiment Station. Messrs. Coffey and Wuchet are in charge.

The object of this experiment is to collect data which will help in the determination of a more profitable type of swine.

The procedure is one whereby breeders of swine in the State of Ohio nominate litters of pigs from good producing sows, sending four of the pigs from a litter to the Ohio State University. Here a feeding and killing test is made of the pigs and useful data are accumulated.

This project is sponsored by a Committee appointed by the National Swine Growers' Association and is cooperated in by the Agricultural Experiment Stations at Wisconsin, Iowa, and Minnesota.

Professor F. H. Helmreich is conducting experimental work along the same lines mentioned in last year's report, and to date has concluded nearly seven years of work on the effect of grains, including soy beans, upon the quality of fat produced in hogs. His work, thus far, shows that the age of the animal, the rapidity of gain, and the degree of fatness have as much effect upon the quality of fat produced in the hog carcass as does the nature of the unsaturated fats in the feed.

It had been previously proposed and thought that grains high in unsaturated fats, such as soy beans and peanuts, should in all cases produce very soft carcasses. More recent investigation shows that the rapidity of gain as influenced by the palatability of the ration has even a greater influence on the resulting fat. In order to make the feeds more palatable, thereby increasing the rate of gain, this past year, the soy beans were cooked and fed to pigs divided into six lots. The average weight of the groups varied about twenty pounds. When these hogs were slaughtered at the weight of 225 lbs., all of the carcasses except the very slowest gaining ones were medium hard. This throws an entirely new light upon our knowledge of fat deposition in the hog.

The chemistry work involved in the study of this problem is being conducted by Mr. Helmreich under the guidance of Dr. J. F. Lyman of the Agricultural Chemistry Department. It is thought that another year or two of work along this line should bring this project to a satisfactory close. Inasmuch as the acreage of soy beans in Ohio and throughout the corn belt is increasing at an enormous rate, this problem is of great practical importance right at this time.

Mr. Heizer has continued his work on Inheritance of Coat Color in Jersey Cattle, Inheritance of Coat Color in Horses, and Inheritance of Gait in Horses



in addition to his Doctor's thesis on Breeds of Dairy Cattle in America and the Relation of Breed Development to Prices Paid for Cattle of Various Breeds at Public Auction. Mr. Heizer has had a full teaching schedule, which has made it impossible for him to devote very much time or effort to his research work.

Mr. Sutton, in cooperation with Dr. J. D. Brown of the Department of Physiological Chemistry, has completed two experimental projects relative to butterfat constants and the effect of various oils in the ration of the dairy cow on the secretion of milk and butterfat and the chemical composition of the butterfat.

In the first experiment, menhaden fish oil was fed and the effects on the secretion of milk and butterfat and the changes brought about in the chemical composition of the butterfat were determined.

In the second experiment, corn oil was fed and practically the same determinations made as when the fish oil was fed.

These two oils, when incorporated in the ration of the dairy cow, brought about interesting changes in milk and butterfat production and in the chemical composition of the butterfat. However, the changes brought about by one oil are entirely different from those brought about by another.

Robert O. Roth is working upon the subject "Market Classes and Grades of Slaughter Hogs." The plan is to slaughter 170 individuals representing the various weight classes and grades. Complete data are being secured when the hogs are slaughtered and made into wholesale cuts. Photographs are being made of the live animals and again of the chilled carcass. Some interesting correlations are being discovered between the thickness of the back fat and the respective grade given the hog while yet alive. Fat samples are being obtained from which the firmness of the product will be determined chemically. To date, 180 hogs have been slaughtered.

Jonathan T. Frost is working on the subject "The Farmer's Meat Supply," which deals with the killing, curing, and cutting up of the three major classes of meats: beef, pork, and lamb. The most practical and most efficient methods are being found for processing the carcass, including the various methods of canning with special reference to the bacteriology of canning.

New meat preparations and specialties have been prepared with the view of utilizing a greater portion of the carcass.

The meat curing in the summer time under farm conditions is being worked upon, and some interesting facts concerning rapid salt penetration have been found.

Mr. Roth and Mr. Frost have been doing their research work under the supervision of Professor Helmreich.

#### OTHER ACTIVITIES

A meeting of the dietitians and cafeteria managers of Ohio State was called by Professor Helmreich last Fall Quarter with a view of interesting them in having this department furnish the meats for the three leading eating establishments on this campus. Mr. Royer attended the meeting.

It was agreed that on and after January 4, 1930, the Animal Husbandry Department should furnish all the meats for the Hospital (including South Hall and Isolation), Mack, Oxley, Neil, and Pomerene Halls. Some idea of the volume of this business may be formed from the following excerpt from the financial statement:

Central Committee .....	\$ 270.17
Mack and Oxley Halls .....	2,650.54
Neil Hall .....	3,108.88
Ohio Union .....	19.98
O. S. U. Hospital .....	5,611.74
Pomerene Hall .....	1,823.16
Leonard Melching .....	13.86
Cash Sales .....	705.75

\$14,204.08

This project has not only assured high quality meat products to all of the dormitories but it has been possible to greatly improve the type of instruction given by this department to the students in Home Economics and Animal



Husbandry. The splendid cooperation of Mrs. Kennedy, and Misses Flory, Bone, Hoffman, and Skinner is acknowledged. All of the meat cutting has been done by students under the supervision of Mr. Helmreich.

## DEPARTMENT OF BOTANY

### GENERAL BOTANY

During the year all of the sections of General Botany have been placed on the straight five-hour basis. All of the instructors and four of the assistants have had experience with this procedure and we shall have no inexperienced teachers next year. During the year Mr. Thut has made up two manuals for the assistants which detail the work for every lesson in each of the two courses. They tell the time to plant seeds and spores to have the proper stages of development on the day when they will be needed. This is a splendid piece of work and required a large part of his time during the year.

The question is sometimes asked whether our General Botany course is sufficiently advanced for Senior college students. Miss Williams studied the records of a number of students over a period of several years and has made the following percentage summary of the grades received by first-, second-, third-, and fourth-year students:

CLASS	PERCENTAGE RECEIVING THE FOLLOWING GRADES					NUMBER STUDENT RECORDS STUDIED
	A	B	C	D	E	
Freshmen .....	10	24	36	17	12	1,073
Sophomores .....	10	27	37	17	5	1,109
Juniors .....	19	27	33	10	3	686
Seniors .....	29	29	34	6	1	195

This shows that the upper classmen secure fewer grades in the D and E groups and more grades in the A and B group, probably because they are a more highly selected group of students. The grade of C, however, is attained by the largest percentage of students whether they are freshmen or seniors, and the percentages are not very different. This seems to indicate that even seniors may profit by the course.

### STUDENT INTERVIEWS

During the Autumn and Winter Quarters thirteen sections taught by Mr. Tiffany, Miss Brown, and Miss Williams were given interviews. The teachers engaged in the interviews believe that they were of value in establishing cordial relations between student and teacher. They made possible better mutual understanding in certain peculiar cases. Comparison of average grades of students interviewed and students not interviewed indicated no apparent differences. On the other hand, Dr. Tyler and Dr. Nisonger compared matched pairs of students on the basis of intelligence tests and previous records and found an average difference of 5 per cent in the grades in favor of the interviewed students. There is, therefore, every reason to continue this experiment next year.

### SECTIONING ON THE BASIS OF PREVIOUS RECORD

Dr. Sampson and Miss Williams selected two sections on the basis of previous records. Dr. Sampson taught the bright section, and Miss Williams the

dull section. On comparing the results of the "dull" section with the average for the Winter Quarter, it looks as though the "dull" section fared worse than if the students had been in the ordinary section. A measure was assumed by seeing what happened to the "C" students in both cases (the number of cases is of course small).

"C" students in regular sections attained grades as follows:

B	C	D	E	
14 per cent	61 per cent	20 per cent	5 per cent	(139 grades)

"C" students in the "dull" section attained grades as follows:

B	C	D	E	
14 per cent	14 per cent	57 per cent	14 per cent	(21 grades)

This suggests that when the "dull" students have no higher standards for comparison than themselves they do not strive for mastery as they do when they have better standards. Class discussion is exceedingly difficult to secure, the teaching is more of a strain on the teacher, and the class lacks enthusiasm and an average esprit de corps. Perhaps no conclusion should be drawn on these data.

#### RESEARCH

- E. N. Transeau: Continued work on the Original Vegetation of Ohio  
 Continued work on a Monograph of the Zygnemales  
 Classification and distribution of forest types in Central States  
 Supervision of Botanic Garden (with Sampson and McCarthy)  
 Chairman of the Physiological Section of the Botanical Society of America  
 Member at large, National Research Council, Division of Biology  
 Member Committee on Agriculture, National Research Council  
 Collaborator U. S. Forest Service  
 Member Council of Central States Forest Experiment Station  
 Associate Editor, Zoological Monographs, Zoological Society of America
- J. H. Schaffner: Research in progress:  
 Study of a complete seasonal fluctuation curve of the sex reversal in staminate hemp  
 Preparing a new catalog of Ohio Vascular Plants  
 Making extensive studies of orthogenetic plant series and other aspects of evolution  
 Continuing to study and formulate principles of plant taxonomy  
 A study of the taxonomy and phylogeny of Equisetum  
 A study of the geographic distribution of the species of Equisetum  
 Supervision of Ohio State Herbarium  
 Identification of Plants sent in by teachers and other citizens of Ohio  
 Critical study of additions to the Ohio State Herbarium
- H. C. Sampson: Continued work on the original vegetation of Ohio  
 Classification and distribution of forest types in the Central States (with Transeau and McCarthy)  
 Lignification of weed cell walls (assisted by Mrs. Humphrey)  
 Several problems in the teaching of general botany (with Mr. Nisonger and Mr. Tyler)  
 Supervision of teaching of General Botany  
 Supervision of graduate students of microchemical problems
- W. G. Stover: Reports further progress in the study of:  
 The streak disease of tomato and the yellow mosaic disease of tomato  
 Supervision of Graduate Students of mycology and plant pathology  
 Extension Service—identification of disease organisms and recommendation of control measures
- L. H. Tiffany: Survey of the phytoplankton of Lake Erie: summation of relative abundance seasonally and economically as fish food  
 Algae of Ohio (with Transeau)



Teaching problems, especially in relation to freshmen

The Algae of Michigan (thesis, Alma B. Ackley)

The Algae of Kentucky (thesis, B. B. McInteer)

Comparative value of algae as food for various fishes (thesis, E. E. Coyle)

Business Manager, the *Ohio Journal of Science*, to Jan. 1, 1930

Vice-President, American Microscopical Society, 1929-

Vice-President (Botany) Ohio Academy of Science, 1929-30

Collaborator Biological Abstracts, 1926-

A. E. Waller: Preparing a paper on "Ectogeny in Maize"

Conducting experiments on effects of radium treatment on hereditary

characters of Iris (in cooperation with Dr. W. M. Ayres of Cincinnati)

Growing seedling progeny of treated plants in the Botanic Garden

As Chairman of Scientific Committee of the National Iris Society, has

supervised preparation of three bulletins on "Germination of Iris Seeds,"

"Chromosomes of Iris," and "The Iris Borer," by authors elsewhere.

Continued breeding work on the inheritance of periodicity in iris

Continued collecting of wild forms of Iris from all parts of the world

Curator Botanic Garden, supervision of planting and laying-out of plots and paths

Study during Spring Quarter 1929 of deserts of Arizona and California, and the methods used in dry-farming and irrigation

Treasurer Ohio State Academy of Science

B. S. Meyer: Continued researches on "Cold Resistance in Evergreens"

Ecology and physiology on the Tulip Poplar (with L. F. Kellogg)

Direction of physiological problems of eight students

During summer of 1929, study and research at the Desert Laboratory of the Carnegie Institution at Tucson, Arizona

Business Manager, *Ohio Journal of Science*, since January 1, 1930

Lois Lampe: Continued research work on "Meristematic Activity in the Developing Endosperm of Maize"

Charge of course in Microchemistry during Autumn Quarter

Studied optical methods of analysis under Dr. McCaughey

S. S. Humphrey: Study of sex in the genus *Coprinus* by means of monosporous cultures, and effects of ultra-violet light

Key to the Ohio Thelephoraceae

Supervision of microscopes and other optical apparatus of the Department

W. H. Camp: Studying the anatomy of hemp with particular reference to sex reversal

Starch synthesis in the non-green portion of variegated leaves (with A. C. Chapman)

C. W. Blaydes: Completing research on "Water Loss from Plants Growing in Their Natural Environment"

Directing Master's thesis of L. C. Li

H. J. Brown: Continued work on Desmids

National President, Sigma Delta Epsilon, Graduate Women's Scientific Organization, 1929-30

Collaborator Biological Abstracts

Faculty adviser, W. S. G. A.

All other staff members are working on theses for advanced degrees.

THE BOTANIC GARDEN

During the year the Botanic Garden has begun to assume form in spite of the fact that no specific funds were provided for specimen plants and for development. Through the gifts from the U. S. Forest Service, the Boyce Thompson Institute for Plant Research, the State Department of Forestry, the Franklin Garden Club, the grounds department, and from certain members of

the staff, and the use of funds available for plant materials in the Department of Botany, the garden has been started and we now have several hundred species of plants that will be of great importance in the future development of botanical instruction at this institution.

A working plan for the garden has been drawn which contemplates a formal entrance between the Botany and Zoology Building and the Home Economics Building, and opposite the tower of Pomerene Hall. This entrance leads to a pool and terrace followed at a second level by an informal pond for aquatic and plants requiring low moist ground, and a bog and plot for rhododendrons and other heath plants.

Our permanent plantings have been confined to the eastern and southern borders and along the service drive. Here plots for conifers, legumes, roses, aralias, viburnum, dogwoods, and other natural groups, have been planted.

The bottom land west of the terrace is the experimental grounds and now has pedigreed cultures of a number of hybrids and pure lines of hibiscus, hemp, maize and other plants upon which the staff and graduate students are carrying on researches.

#### PUBLICATIONS

E. N. Transeau: Distribution Maps of Certain Plants in Ohio (with P. E. Williams), Bull. 22, Ohio Biological Survey, 1929; Precipitation Types of the Prairie and Forested Regions of the Central States, Annals Assoc. Amer. Geog., 20:45, 1930; Progress in the Survey of the Vegetation Types of the North Central States, Annals Assoc. Amer. Geog., 20:45, 1930.

J. H. Schaffner: Orthogenetic Series Involving a Diversity of Morphological System, Ohio Jour. Sci., 29:45-61, 1929; Additions to the Catalog of Ohio Vascular Plants for 1928, Ohio Jour. Sci., 29:81-92, 1929; Principles of Plant Taxonomy VI, Ohio Jour. Sci., 29:133-40, 1929; Progeny Resulting from Self-Pollination of Staminate Plant of *Morus alba* Showing Sex Reversal, Bot. Gaz., 87:653-59, 1929; The Flowers of *Equisetum*, Amer. Fern Jour., 19:77-82, 119-26, 1929; Principles of Taxonomy, VII, Ohio Jour. Sci., 29:243-52, 1929; Principles of Plant Taxonomy, VIII, Ohio Jour. Sci., 29:289-99, 1929; Orthogenetic Series Resulting from a Simple Progressive Movement, Ohio Jour. Sci., 20:61-79, 1930; Additions to the Catalog of Ohio Vascular Plants for 1929, Ohio Jour. Sci., 30:98-108, 1930.

N. F. Henderson (under direction of Professor Schaffner): Ohio Mosses: Dicranales, Ohio Jour. Sci., Ohio Jour. Sci., 29:197-217, 1929; Checklist of Ohio Mosses, mimeographed, pp. 1-14, 1930.

H. C. Sampson: Vegetation Types and Soil Types in Marion County, Ohio, Annals Assoc. Amer. Geog., 20:40-41, 1930.

Esther M. Mitchell (under direction of Professor Sampson): A Microchemical Study of Hemicelluloses of Endosperms and Cotyledons, Amer. Jour. Bot., 17:117-38, 1930.

L. H. Tiffany: "Living Plants Available in Winter, School Science and Math., 29:714-19, 1929; (With G. H. Wailes) Some Algae from British Columbia," Vancouver (B.C.) Museum and Art Notes, 4:171-77, 1930. The Oedogoniaceae, a Monograph including all Known Species of the Genera *Bulbochaete*, *Oedocladium*, and *Oedogonium* (published by the author), 254 pp., 64 pl., 633 figs., 1930.

Alma B. Ackley (under direction of Professor Tiffany): New Species and Varieties of Michigan Algae, Transac. Amer. Micros. Sec., 48:302-9, Figs. 1-22, 1929.

Elizabeth E. Coyle (under direction of Professor Tiffany): The Algal Food of *Pimephales promelas*, Ohio Jour. Sci., 30:23-25, 1930.

B. B. McInteer (under direction of Professor Tiffany): Preliminary Report of the Algae of Kentucky, Ohio Jour. Sci., 30:131-32, 1930.



W. G. Stover: A Popular Key to the Distinctive Groups of the Larger Fungi, Ohio Jour. Sci., 30:81-84, 1930.

M. M. Johnson (under direction of Professor Stover) The Gasteromycetae of Ohio, Bulletin 22, Ohio Biological Survey, 1930.

P. E. Williams: Distribution Maps of Certain Plants in Ohio (with E. N. Transeau), Bulletin 20, Ohio Biological Survey, 1929.

Helen J. Brown: The Algal Family Vaucheriaceae, Transac. Amer. Micros. Soc., 48:86-104, 5 pl., 1929; The Desmids of the Southeastern Coastal Plain Region of the United States, Transac. Amer. Micros. Soc., 49:97-139, 4 pl. 1930.

W. G. Stover and M. M. Johnson: Two Ohio Subterranean Ascomycetes and Their Ascomycetous Parasites, Ohio Jour. Sci., May, 1930.

#### RESEARCHES COMPLETED—PAPERS IN PRESS

W. G. Stover and M. M. Johnson: Two Ohio Subterranean Ascomycetes and Their Ascomycetous Parasites, Ohio Jour. Sci.

L. E. Hicks: Physiological Experiments with the Lemnaceae, Proceedings Ohio Acad. Sci. (Abstract).

L. H. Tiffany: Maintaining the Interest of Students of Biology, Proceedings Ohio Educational Conference, 1930; The Algal Family Oedogoniaceae, Proceedings W. Va. Acad. Sci., 1930.

J. H. Schaffner: Sex Reversal and the Experimental Production of Neutral Tassels in Indian Corn, Bot. Gazette; Diagnostic Analysis and Phylogenetic Relationships of Equisetum, Amer. Fern Jour.; Geographic Distribution of the Species of Equisetum in Relation to Their Phylogeny. Amer. Fern Jour. Principles of Plant Taxonomy, IX, Ohio Jour. Sci.; The Ecological Determination of Twisted Hypocotyls and Other Peculiar Expressions in Hemp, American Naturalist.

R. B. Gordon: Ohio Wild Flower Bulletin, Extension Service.

A. E. Waller: Plant Nomenclature, National Hort. Jour.

#### DEPARTMENT OF DAIRY TECHNOLOGY

The former Department of Dairying was reorganized at the beginning of the year, the work in dairy production being assigned to the Department of Animal Husbandry as previously noted, and the work in dairy manufacturing and allied branches to a new Department of Dairy Technology under the leadership of Professor Robert B. Stoltz. Three new men were called to the new department.

Mr. Burgwald has been in the market milk section of the Bureau of Dairying and has made a study of the processing and marketing of milk in the southeast and middle west. He has a wide experience and is well qualified to teach and to do research in this field. Mr. Erb was the technical superintendent of one of the largest ice-cream plants in Greater New York. Mr. Kochheiser, who has been plant superintendent of the Ideal Milk Company at Portsmouth, is the first person to devote his time to extension work in Dairy Technology.

#### COMMERCIAL WORK

The manufacture and sale of dairy products in the dairy laboratory has been continued. With the exception of the foreman, all employees in the laboratory are students. About two thousand pounds of milk are purchased daily from the University herd and eight other dairy farms. Cream for churn-

ing purposes is purchased from about fifteen dairy farms. Following is an itemized statement of the sales in the dairy laboratory for the twelve months ending December 31, 1929:

36,290 gallons .....	Milk
7,217 gallons .....	Cream
72,707 gallons .....	Skim Milk
43,520 gallons .....	Butter Milk
42,314 pounds .....	Butter
10,202 pounds .....	Cottage Cheese

### RESEARCH

In order that we might be better enabled to keep in touch with the outstanding and common problems of the industry, the various organizations of the dairy manufacturing industry were invited to appoint an advisory committee to work with this department on research problems in milk, ice cream, and butter.

Each committee has had at least one day conferences with the staff of the department, in which valuable suggestions for research work were offered. These conferences brought out the need of an organized program for research in dairy manufacturing.

The consensus of opinion of this committee was that the greatest need in the field of market milk processing is a quick and reliable method for grading milk. Work is started on this problem, but due to the facts that such a problem is one that requires a great amount of research and that it is being carried on by a member of the teaching staff, the results show only a limited progress.

A problem started a year ago to bottle milk in paper bottles has not been completed. The company making this machine is now rebuilding it and expects to place one in our laboratory some time this summer.

Work has been started to determine the efficiency of different types of milk coolers for farm use and the effect of rapid and slow cooling on the bacterial count of milk.

A study was made of the practicability of an ice-cream dispenser's purchasing his ice-cream mix and freezing it in the store. It was found that this was profitable providing the volume of business was sufficiently large and sanitary conditions could be met.

A study was made of packaged ice cream. It was found that the ice cream should be frozen more stiff when pulled from the freezer; that it should not be permitted to remelt; that the composition of the mix should be from 39 to 40 per cent total solids and that the overrun should be about 80 per cent.

A study is being made of processing cocoa powders and chocolate liquors for flavoring ice cream.

### CREAM IMPROVEMENT

In the past year, with the cooperation of the publications department and the Ohio Dairy Products Association, we prepared a calendar which contained cartoons to replace the cream-improvement posters that have been previously used. More than twenty thousand of these calendars were printed and distributed to creameries, cream-buying stations, and dairymen.



## JUDGING TEAMS

Our dairy products judging team entered the National Dairy Products Judging Contest held at the National Dairy Exposition at St. Louis under the auspices of the American Dairy Science Association. Fifteen teams from state agricultural colleges participated in the contest, a team consisting of three students. Of the forty-five individuals entered, the three men on our team ranked first, third, and twenty-fourth in judging all products; in the judging of milk they ranked first, seventh, and twentieth; in the judging of cheese they ranked first, sixth, and twenty-second; and in the judging of ice cream they ranged eighth, tenth, and thirtieth. As a team they won first in all products, first in milk, first in cheese, third in ice cream, and sixth in butter.

## SCHOLARSHIPS

There is a need for more students in Dairy Technology. Fifteen men could have been placed this spring, but only three have graduated this past year.

In order to interest a larger enrollment of city high-school graduates of a high scholastic standing, Mr. Everett Antrim of the Furnas Ice Cream Company, Columbus, Ohio; Mr. John Schubaugh of the Sanitary Milk Company, Canton, Ohio; and Mr. Henry Page of the Page Dairy Company, Toledo, Ohio, have each offered a scholarship of four hundred dollars to a high-school graduate in each of their respective cities to enroll in the course in Dairy Technology.

## DEPARTMENT OF FARM CROPS

## TEACHING ACTIVITIES

During the Winter and Spring quarters a different plan was tried experimentally in conducting Course 401. The main features of the method are: (1) a reduced number of meetings for class discussion and recitation; (2) four individual oral reports per student on assigned topics; (3) text assignments made and four written midterms given; (4) several written reports required of each student.

In the oral reports an attempt is made to evaluate the quality of the student's thinking in certain particulars, and to show that facts are valuable in proportion as they can be used in solving practical problems in life situations. Advantages of the method are more individualizing of instruction and less retarding of the brighter students by the slower ones. The student reads more widely. A disadvantage is the heavy demand on the instructor's time.

The department is indebted to Junior Dean W. H. Nisonger and to Dr. R. W. Tyler of the College of Education for help in planning the method and in setting up tests.

## RESEARCH

Each member of the department has research in progress, and most of the work is done under Experiment Station projects.

Mr. Park's research has to do with genetic studies and breeding experiments with sweet corn, barley, soybeans, and sweet clover.

Mr. Willard's research is concerned with forage crops and related topics. As noted in the list of publications, several projects were either completed or reported on during the year. The effect of harvesting alfalfa at different stages and different numbers of cuttings is being studied both here and at the

N. W. Branch Experiment Station at Holgate. Fundamental sweet-clover studies and comparative studies of legumes in different soil types are being conducted. Spraying with chlorates to kill noxious perennial weeds developed into a very important project in 1929, when over four hundred different plots were sprayed, many of them two and three times, at six different localities in the state. Method of curing soybean hay, the moisture content of forage at different times of day, and other haymaking problems were studied extensively in 1929.

Mr. Borst's projects are: (1) the effect of cultivation on yield of corn and on soil moisture and nitrate content; (2) rate and date of seeding oats, barley, and flax; (3) breeding wheat for winter resistance and quality; (4) breeding oats for disease resistance and yield; (5) methods of seeding wheat to overcome winter killing.

Mr. Anderson is doing the major part of the work in the sweet-corn breeding project. The plan is to measure the yield and quality of corn in a large number of first generation hybrids in comparison with commercial varieties.

Mr. Hardies is studying the inheritance of certain penicle characters in an oat hybrid.

#### PUBLICATIONS

H. L. Borst: Rate and Date of Sowing Soybeans, Ohio Bimonthly Bul. No. 138, pp. 81-86, 1929.

J. B. Park: Short articles in Forty-eighth Annual Report Ohio Agr. Exp. Sta., Feb., 1930; two reviews in Biological Abstracts; articles in farm papers.

C. J. Willard: An Easier Way to Kill Quack Grass and Canada Thistles, Ohio Agr. Exp. Sta. Bi-monthly Bul., July-Aug., 1929; Sweet Clover, Ohio Extension Bul. 55; revised Jan., 1930; Corn, Its Culture and Improvement, mimeographed, 45 pp., Jan., 1930; Sowing Sweet Clover in Wheat (with L. E. Thatcher), and Additional Suggestions on Spraying Weeds with Chlorates, Ohio Agr. Exp. Sta. Bi-monthly Bul. 142, Jan.-Feb., 1930; articles in the Annual Report of the Ohio Agr. Exp. Sta., Bul. 446, Feb., 1930, as follows: Alfalfa Varieties at Columbus, Clipping Sweet Clover Intended for Seed, Height of Clipping Sweet Clover Nurse Crop, Summer Annual Forages at Columbus.

#### REPORT ON THE UNIVERSITY FARM FOR THE YEAR 1929-1930

The Division of Farm Operations continued the program of the past few years without much change, except to carry some of the new developments along toward completion. During the year the Wood Farm of about 45 acres, lying north of the Waterman Farm came into University possession and was operated by Farm Operations. There were no new assignments of land to other departments and not much change in acreage cultivated in the general farm crops.

The new horse barn which was started in the late fall of 1928 was completed and the farm work horses were stabled in it in the early part of April of this year. One of our full-time employees, Mr. Louis Randall, moved into the first floor of the Waterman House and was put in charge of the horse barn and premises. Very little was done toward removing the old buildings because of labor shortage, but some effort was made to clean up around the new barn and do some of the grading near the building. Later in the year cement curbing was constructed along each side of the drive leading to the main entrance, the dirt excavated, and a solid roadway of about fifteen inches of cinders was built to the doors. An apron of concrete was also built in front of the door about sixteen feet out from the building.

The fencing done during the year was changing some of the fence around the woodland pasture at the Waterman Farm, which was necessitated by the



purchase of the Wood Farm. This, however, was not completed, but will be in 1930. One thousand rods of wire fence and one thousand fence posts were purchased during the year.

About twenty-six thousand feet of four-inch tile were purchased and stored on the Waterman and Wood farms for drainage work during the winter of 1929 and spring of 1930. About four thousand rods of 18-inch, 15-inch and 12-inch tile were purchased and placed in position.

The shoeing of the horses by Mr. H. L. Bosart, one of the teamsters, was continued this year. This plan is working quite satisfactorily and seems to be a good solution for the shoeing work. A compilation of the amount of work done is given in a table in this report.

The supply of labor to put the farm in the condition desired is not sufficient. With the addition of farms purchased and the large amount of clean-up work ever present, it seems that we are unable to catch up and give the farm the appearance that it should have. During the year we have had eleven regular men employed and part-time men as far as funds would permit for the other work that came to be done in season.

The manure accumulation of State Fair week was again hauled to the University Farm. This year it was placed on the Wood Farm. The only expense to the University was the assistance which our regular men gave to help unload the trucks in the field.

During 1929 Farm Operations Division cultivated 400 acres of land, including the portions of land assigned to other departments but cultivated by our employees.

The season was favorable for growth of crops and the tonnage yield was quite satisfactory, but the unfavorable rainy weather of the harvest season delayed our haymaking, and we lost probably one-half the value of the clover crop by late cutting and getting the hay wet after it was cut. The seasonal rainfall caused a heavy growth of weeds, which also added to the undesirable qualities of the hay.

Most of the alfalfa crop, which was the best we have ever had, went into the barn in good condition. It made a total yield of almost 5 tons per acre, which is a record for the University Farm.

An effort was made to continue pasture fertilization begun last year. Sulphate of ammonia was applied to about a hundred acres of pasture at about 80 lbs. per acre in the early part of April. Conditions prevented giving any other applications this year.

#### TOTAL YIELDS OF CROPS

Alfalfa Hay .....	117.7 tons
Clover Hay .....	219.8 tons
Timothy Hay .....	68.9 tons
Soy-Bean Hay .....	13.7 tons
Oats .....	3,681.0 bushels
Barley .....	286.0 bushels
Rye .....	77.0 bushels
Wheat .....	516.4 bushels
Ear Corn .....	3,018.0 bushels
Oat Straw .....	51.0 tons
Barley Straw .....	6.0 tons
Rye and Wheat Straw .....	5.2 tons
Wheat Straw .....	25.0 tons
Ensilage .....	329.3 tons
Corn Fodder .....	115.0 tons
Mangel Wurtzels .....	11.7 tons

## THE SCHOOL OF HOME ECONOMICS

The School of Home Economics met with a serious loss due to the illness and death of Professor Grace Graham Walker who had been a member of the staff for seventeen years. Mrs. Walker was an instructor in the department from 1913 to 1919, assistant professor, 1919-20. After that time she had the rank of professor.

## FOODS AND NUTRITION DIVISION

The courses in foods and nutrition have been carried on under the chairmanship of Miss McKay.

The division has given help to outside organizations. In helping the City Charities of Columbus in the use of a food list and in planning diets based on the list, a demonstration was given to which Mr. Lender, Superintendent of City Charities, and his staff were invited.

Help has also been given to individuals who have written in for advice on feeding problems.

Research in nutrition has been carried on under a cooperative arrangement with the Ohio Agricultural Experiment Station. One bulletin has been published during the year, another will be sent to press this quarter. Two others will probably be completed and published in the course of the Autumn Quarter of 1930.

The Nutrition Advisory Service, which was established in the Spring Quarter 1929 and carried on by Mrs. Elsie S. Minton during that quarter on a part-time basis, has been continued through the year by Miss Mary Ann Brown, who has given half time to this work and half time to research. General policies for the advisory service were outlined by a nutrition council composed of the Dean of Women, the Dean of Men, the Director of the Student Health Service, the Superintendent of Residence Halls, and the following members of the staff of the School of Home Economics: Miss McKay, Mrs. Kennedy, Mrs. Minton, and Miss Lanman. Of the 12 fraternities and sororities that were receiving the detailed service during the Spring Quarter, 7 continued to avail themselves of it in the Autumn and others were added to the list. Ten fraternities and 5 sororities have received what has been termed detailed help, 8 fraternities and 11 sororities what has been termed general help. The nutrition adviser has held 165 conferences with representatives of fraternities and sororities. She has planned menus and distributed them to the groups receiving the service. In conference she has discussed the menus with the representatives, giving suggestions as to food preparation, supplying recipes when needed, and helping each representative to solve his marketing problems. Because the cost of serving meals is uppermost with these organizations, the nutrition adviser has calculated the cost of meals in one fraternity and one sorority. Four food preparation demonstrations have been given during the year. These have been attended by stewards and cooks of the organizations. The Nutrition Advisory Service has assisted with various outside organizations such as the Northminster Church, St. Ann's Orphanage, the City Charities organization, the Parent-Teachers Association of Marion, Ohio, and student homes in Wooster, Ohio. This work has been incidental. The nutrition council is recommending to the University that the Nutrition Advisory Service be put on a full-time basis so that it may give more extensive assistance to the sororities and fraternities and other organizations serving food to the students of The Ohio State University.



## TEXTILES AND CLOTHING DIVISION

The work in the Textiles and Clothing Division has been continued this year under the chairmanship of Eunice Ryan.

The objective has been to set up standards which will help the students to apply the principles of economics, hygiene, and art in the selection and construction of clothing. The practical application of the principles taught has been strengthened this year by increased cooperation with commercial firms.

The service of analyzing fabrics has been rendered to the local Better Business Bureau.

A new overview course, Home Economics 404, has been offered to give the students not majoring in Home Economics an opportunity to obtain a general knowledge of textiles and clothing. Another addition to the offerings of the division is an advanced course in textiles, Home Economics 602, which prepares the student for research.

## HOUSEHOLD MANAGEMENT DIVISION

It is this division which has suffered most seriously through the loss of Professor Grace Walker, chairman of the division. She had developed strong courses in household management, house furnishing, and the purchase of clothing and house furnishings and had promoted a course in household engineering, taught in the division. When Professor Walker discontinued her work it was distributed among other members of the staff. Her daughter Mrs. Margaret Walker Spiers, assistant professor in the department, took a large share of the load. Miss Doris Ufer, assistant to Professor Walker, was given considerable responsibility, and Miss Daisy Davis and Mrs. Elsie Steiger Minton gave a small portion of their time to these courses. Miss Alice Donnelly supervised a thesis in home management which had been started under Professor Walker. With their generous cooperation the courses have been carried through as announced.

In addition, the division of household management has given aid to outside organizations such as retail merchants and the Better Business Bureau in testing the quality of goods with the intent of bringing about truth in advertising. Many inquiries from teachers in the field and from private individuals relative to purchasing problems are cared for in this division.

There has been development in the new course in household engineering started in 1928-29. Miss Daisy Davis was appointed to take the place of Mrs. Margaret Black who resigned in June, 1929. The principles of the operation, care and selection of household equipment are studied. Generous cooperation on the part of various commercial and utility organizations has enriched the course.

## CHILD DEVELOPMENT DIVISION

The resignation of Miss Deadman and the addition of Mrs. Margaret Walker Spiers in child development have made some slight changes in the point of view of the courses, but there has been no interruption of the work and distinct progress has been made.

The nursery school as laboratory for the child-development courses has been continued and improved. An enrollment of 20 or 21 children has been maintained. The list of applications is very large and far exceeds the number of children whom we can accommodate. The ages of the children have ranged this year from 19 to 46 months.

During the year four graduate students have been studying special problems in child development. The subjects of investigation have been social development of pre-school children, vocabulary study of four four-year-old children, an investigation of memory in pre-school children, and a study of the free play of a group of nursery school children.

#### INSTITUTION MANAGEMENT DIVISION

The work in the institution management courses, Home Economics 630 and 631, has been reorganized and arranged so that a class of 10 students can now be accommodated. Previously the classes were limited to seven students.

Some interesting and worth-while contacts have been made with several downtown restaurants. Plans are being made to increase this cooperation with other institutions next year. This will mean strengthening our students' experience and increasing the opportunities for placing graduates in positions.

The volume and type of business has remained practically the same at Pomerene Hall cafeteria this year as last year.

#### HOME ECONOMICS EDUCATION DIVISION

No outstanding changes have taken place in the home-economics education division, but stability and a spirit of progress have continued to characterize the work. Classes have been conducted in such a way as to demonstrate modern methods of curriculum construction and teaching.

Enrollment of students electing the courses which prepare them for certification to teach has been normal for the year. The load, however, not being equally distributed, was too heavy in the Spring Quarter.

The facilities for supervised teaching in our three centers, at North High School, Columbus, at Reynoldsburg, and at Canal Winchester, were overtaxed, especially during the Spring Quarter. Excellent cooperation has been maintained with the Columbus public schools, so that many of our students have been able to carry on their supervised teaching in the various home-economics centers of the city.

#### HOME ECONOMICS EXTENSION SERVICE

The work of the home economics extension staff is reported briefly later in the following pages and is presented fully in the report of the Director of the Agricultural Extension Service.

In addition to the work of the extension staff, the resident staff has cooperated in the regular extension program and has responded to many and varied outside requests for assistance in all phases of home economics.

#### RADIO PROGRAM

The radio program called the Homemakers' Half Hour, which has been given through Station WEAO since October, 1926, has been continued. This year it has been scheduled at ten o'clock on Mondays, Wednesdays, and Fridays. In the program many subjects of interest to homemakers have been presented by students and staff members.

In addition to the contribution made through the Homemakers' Half Hour, a series of home economics talks has been scheduled by extension staff members in the Farmers' Night programs which are presented weekly by the College of Agriculture.



# PERSONNEL WORK WITH FRESHMAN AND SOPHOMORE STUDENTS

The advisory program for junior college women in the College of Agriculture as started last year continued to function during the school year 1929-30. Miss Eve E. Turnbull was allowed half her time for advisory work, and she is regarded as assistant to Junior Dean Nisonger. One part of this advisory program is to provide for friendly interviews with students. During the first six weeks of the Autumn Quarter, 102 such interviews were held. Following the mid-term reports, over half of this number returned for another interview. During the winter 53 voluntary interviews were held, and in the spring 46.

During the Spring Quarter Miss Turnbull conferred with each sixth-quarter student to discuss future plans, and assigned each one to an adviser. In this way the transition from junior to senior college work was made easily.

In her work as assistant to the junior dean, Miss Turnbull has helped with the survey course called An Introduction to Home Economics. She is assembling material for a booklet on vocational opportunities within the field of home economics.

## OPEN HOUSE

Parents and friends of the girls in the School of Home Economics had an opportunity to see some of the results of the work in the various phases of Home Economics on May 2, 1930. At this time the second annual open house was held. Exhibits were featured by each of the divisions in Home Economics, which gave every one an opportunity to see some of the work accomplished in this field.

All the work was in charge of student committees. Miss Alma Heiner was faculty adviser for them. Invitations were sent out to people on and off the campus and to high-school pupils of the surrounding counties. About 675 persons attended. The doors of Campbell Hall, the home of the School of Home Economics, were open to visitors from 3:30-5:30 in the afternoon and from 7:00-9:30 in the evening. Besides the educational exhibits displayed by the various divisions, a skit was given which showed some of the work accomplished by the girls in the clothing division.

## RESEARCH

Research has been carried on by graduate students on the following subjects:

Literature for the Pre-School Child

The Effect of the Size of the School on the Teaching Load of the Home Economics Teacher

A Comparison of the Cost of Adequate Diets in Rural Communities of Ohio with the Cost of Similar Diets in Columbus

Comparative Study of the Household Expenditures of 38 Ohio Farm Families for Two Years—1927-28

The Effect of Exposure to Light upon the Breaking and Bursting Strength of Some Branded Wash-Silk Fabrics

The Reactions of a Group of Nursery-School Children to Five Common Vegetables

The following projects have been continued under the direction of Miss Hughina McKay, who is part-time Professor in Home Economics, The Ohio

State University, and part-time Associate in Home Economics, Ohio Agricultural Experiment Station.

Basal Metabolism of Young Women (in progress)

Day by Day Variations in the Metabolism of Young Women (in progress)

Seasonal Variations in the Growth of Pre-School Children of Ohio (in progress)

Foods Used by Rural Families in Ohio during a Three-Year Period

The project on which Miss Brinton has been working, A Study of Certain Cash Expenditures of Ohio Farm Families, is yet to be reported.

Miss Marion Griffith who is part-time instructor in Home Economics and part-time assistant in Home Economics, Ohio Agricultural Experiment Station, has started the project, The Influence of Laundering and Exposure to Light upon Wash Silks Used for Outer Garments.

#### DEPARTMENT OF HORTICULTURE AND FORESTRY

The academic year of 1929-30 witnessed several changes in the organization of this department. On July 1 the chairmanship was transferred from Professor W. Paddock to J. H. Gourley, who was asked to divide his time about equally between the Agricultural Experiment Station and the University. A part of this plan of reorganization included the addition of some other members of the department so that there resulted a considerable rearrangement of the teaching load.

Alex Laurie of the Michigan Agricultural College was appointed Professor of Floriculture to head the Division of Ornamental Floriculture, at both the University and the Experiment Station. H. D. Brown of Purdue University was appointed Professor of Vegetable Gardening to head this division of work at both institutions. L. C. Chadwick of Cornell University was appointed Assistant Professor of Floriculture to succeed Alfred Hottes, resigned. One-fourth of his time is at present devoted to extension work.

In addition to these men who are located at Columbus, the following members of the Experiment Station staff were asked to assist in the teaching work. Dr. F. S. Howlett is in residence during the Autumn Quarter and teaches several courses in Pomology. Dr. J. S. Shoemaker spends the Winter Quarter at the University and teaches courses in Pomology, and Mr. I. C. Hoffman teaches courses in Vegetable Gardening and Greenhouse Forcing in the spring.

#### SPECIAL SHORT COURSES

Of special interest to the horticultural constituents in the state has been the inauguration of the intensive one-week courses dealing with the more technical phases of horticulture. While the attendance was not large at most of these schools it was representative of our best growers, and the attendance was purposely limited to small groups. We have never been associated with a series of meetings that met with such spontaneous enthusiasm as these. It was a pioneer movement, so far as we are aware, to attempt to give fundamental scientific work rather than "extension" type of material to such groups. This series of schools was a part of an effort to bring the residence work of the University to the attention of the horticulturists of the state in the hope that through them prospective students would be attracted to the department.

It might be stated in this connection that letters are being sent to members of all the state horticultural societies signed by the various presidents of



these societies calling attention to the superior opportunities for horticultural training that have been provided by the University. Articles in various papers which are likely to come to the attention of Ohio growers are also being used from time to time to acquaint them with the new set-up in the Department of Horticulture.

#### PHYSICAL PLANT

Some important changes have been made in the use of the physical plant assigned to the department.

The large room in the building used by the Landscape Department was divided into three offices and one laboratory. These additions were in constant use and proved almost indispensable in the new arrangement. The laboratory is serving as a histological laboratory and for all graduate courses and the freshman course, as well as a general conference room.

In the greenhouses the entire plan was changed from using them for display houses to full use by students. Classes meet there daily and a number of special problems in greenhouse management have been assigned to advanced students. In addition, the houses are occupied almost entirely by experiments which will be of mutual benefit to the students and the experimental program. The display of flowers and vegetables is of secondary purpose although visitors are always welcome.

As a result of this plan, the commercial florists and hothouse growers are coming to the University frequently and have expressed satisfaction in the change.

On the farm, likewise, the purely commercial phase is being replaced by series of exceptional plots and gardens designed specifically to give students instruction in commercial vegetable gardening. Accurate cost account records are being kept as a part of the student instruction.

The floricultural and nursery work is being laid out there also, so that practical work along these lines can be provided for the students.

In general we feel that considerable progress has been made during the year and the readjustments should help to improve the teaching facilities for the years to come.

#### PUBLICATIONS

J. H. Gourley (in collaboration with E. F. Hopkins): Some Relations of Nitrogen to Keeping Quality of Fruit, *Am. Soc. Hort. Sci.*; A Method of Staining the Vascular Tissues of Living Plants, *Ohio Acad. Sci.*; Factors Affecting the Color of Fruit, *Md. State Hort. Soc.*; Nitrogen and Keeping Quality of Fruit, *Md. State Hort. Soc.*; Some Factors Which Influence the Color of Fruit, *Proc. Ohio State Hort. Soc.*

H. D. Brown: Potato Yields Increased by Removing First Sprouts, *Sixteenth Proc. Potato Assn. Ann.*, 1929; Greenhouse Cucumber Pruning Tests, *Proc. Amer. Soc. Hort. Sci.*; Newer Methods of Fruit Protection, *Proc. Ohio Veg. Growers' Assn.*; Soils Sterilization, *Proc. Ohio Veg. Growers' Assn.*

L. C. Chadwick: Several articles in professional journals dealing with the propagation of plants, much of it original material.

F. S. Howlett: Fruit Setting in the Delicious Apple, *Proc. Amer. Soc. Hort. Sci.*, 1928 (25): 143-48; Further Experiments on the Relative Self-Fruitfulness of Apple Varieties, *Proc. Amer. Soc. Hort. Sci.*, 1929 (26): 50-55.

F. S. Howlett and Curtis May: Relation of Lime Sulphur Sprays to the Abscission of Young Apples, *Phytopathology*, XIX: 1001-1007, 1929; Spray Injury and Fruit Set, *Ohio Agr. Exp. Sta. Bimon. Bul.* 144: 67-70, 1930.

Alex Laurie: Roses, Gladiolus and Dahlias, *O. S. U. Extension Bul.*

Popular articles for Better Homes and Gardens, Ladies Home Journal, American Home, trade journals.

L. M. Montgomery: Quality Apple Butter, Ohio Agr. Exp. Sta. Bimon. Bul.

J. S. Shoemaker: The Strawberry in Ohio, Ohio Agr. Exp. Sta. Bul. 444.

E. R. Lancashire: Growing Better Plants, Proc. Ohio Veg. Growers' Assn.

F. H. Beach: Penn. Hort. Soc., Harrisburg, judging and lecture.

H. D. Brown: Ill. Florists Soc., lecture.

#### RESEARCH

A rather extensive research program is carried by most members of the staff, but this is financed largely by the Experiment Station because of the part-time arrangement with that institution. The publications of members of the department during the past year will give a view of the type of research under way. Both the more simple type of testing and experimental work as well as fundamental research are a part of our program. Often accurate field observation contributes to certain practical problems in our field.

On the horticultural farm a new series of fertilizer experiments has been laid out and gotten under way. These are to determine the effect on plant growth of limiting amounts of the several chemical elements considered essential for plant growth. This will continue over a period of years and should furnish material for student work and thesis problems for students in vegetable gardening.

Some special experiments are being inaugurated for the study of potato culture, including some deep tillage work in cooperation with the Department of Agricultural Engineering.

The work in propagation of ornamentals, particularly evergreens, is worthy of special note. This is being done by Professor Chadwick and Mr. Esper. It consists of a study of under stocks most suitable for the more common and also the rarer evergreens.

Most of the pomological work is being done at Wooster.

#### PLANT INSTITUTE

Meetings of the Institute were held at the call of the Secretary. During the year there were nine such meetings at which the attendance and interest were unusually good. Usually at these meetings members reported on research projects upon which they were either at present engaged or which they had recently completed.

The program was as follows:

- October 21 — Professor J. H. Gourley, Department of Horticulture, Ohio State University: "The Relation of Nitrogen to the Keeping Qualities of Fruits."
- November 4 — Mr. R. W. Gerdell, Ohio Agricultural Experiment Station: "Limitations in the Response of the Corn Plant to Soil Productivity."
- November 18 — Professor H. D. Brown, Department of Horticulture, Ohio State University: "Solving Agricultural Problems through Cooperation."
- December 9 — Dr. Adolph Waller, Department of Botany, Ohio State University: "Vegetation of the Arizona Semi-arid Region."
- December 16 — Dr. Freeman Howlett, Department of Horticulture, and Ohio Agricultural Experiment Station: "The Relation of Nutrition to the Abscission of Young Apple Fruits."
- February 10 — Dr. Dwight DeLong, Department of Zoology and Entomology, Ohio State University: "The Plant as a Factor in the Action of Bordeaux as an Insecticide."



- March 10 — Dr. J. S. Shoemaker, Department of Horticulture, and Ohio Agricultural Experiment Station: "Chromosome Behavior in Relation to Sterility in Our Common Fruits."
- April 14 — Dr. Guy Conrey, Department of Soils, Ohio State University, and Ohio Agricultural Experiment Station: "The Major Soils Groups of the United States."
- April 28 — Mr. Marion T. Meyers, Farm Crops Expert: "Experiments in Breeding Corn for Resistance to the European Corn Borer."
- May 7 and 8 — Professor Leo E. Melchers, head of the Department of Botany of the Kansas State Agricultural College, gave a series of four lectures, two of which dealt with Egyptian Agriculture and two with Professor Melcher's plant-disease investigations.

# DEPARTMENT OF POULTRY HUSBANDRY

A total of 189 students was enrolled in regular scheduled poultry courses during the year. There were 60 students in the summer short course, 14 in the winter short course, and 14 in the two-weeks short course. A total of 4,000 attended the Farmers' Week poultry lectures.

## RESEARCH

A Study of Chick Embryo Mortality. During the past three years some study has been devoted to causes of chick embryo mortality. There have been 67,095 eggs incubated in the laboratory with a hatchability of 53 per cent. There have been 1,843 dead embryos examined. The conditions found may be summarized as follows: normal, 13 per cent; malposition, 51 per cent; unabsorbed albumen, 10 per cent; cripples, 3 per cent; miscellaneous, 23 per cent.

Influence of Humidity on Hatchability and Livability of Chicks. There were 720 eggs incubated at 40, 60, and 80 per cent relative humidity. Brooding observations were made for 4 weeks. The data may be summarized as follows:

	40% Humidity	60% Humidity	80% Humidity
Per cent hatch of fertile eggs.....	40	64	80
Average weight of chicks, grams.....	35	38	40
Per cent mortality first 4 weeks.....	4	3	14

A Comparison of Battery and Range Systems of Brooding. There were 212 one-day-old Leghorn chicks in each lot. A summary of the data follows:

	Battery	Range
Average weight at 8 weeks, grams.....	480	429
Feed for gram of gain.....	3.4	3.7
Per cent mortality first 8 weeks.....	10	14
Age at first egg, days.....	131	163
Average egg production by 206th day.....	8.6	5.8

Two other comparisons are now being made:

Protein Levels for Maturing Pullets. The second trial has now been completed. There were 30 pullets and 20 cockerels to a lot. They were started when weighing about .5 pound. The data may be summarized as follows:

Lot Number .....	Characteristic of Ration			
	Meat scrap 10% Dried milk 8%	Meat scrap 10%	Meat scrap 5%	Grain and Mash
Lot Number .....	1	2	3	4
Average lbs. gain in 12 weeks.....	2.0	2.1	1.9	2.2
Feed required per pound of gain.....	6.2	6.3	6.3	5.8
Average egg production to Feb., 1930....	29.8	33.3	30.7	36.8
Mortality .....	3	5	8	3

The previous trial and this one indicate that an all-mash ration with 10 per cent animal protein concentrate is most satisfactory for pullet development. The third trial is now in progress.

Minerals for Growing Chickens. Mineral additions have been made to a low mineral ration for growing chickens with the following results:

	Characteristic of Ration					
	Phosphatic limestone	Limestone and rock phosphate	Limestone	No mineral	Bone meal	Rock phosphate
Lot Number .....	1	2	3	4	5	6
Average weight of pullets at 16 weeks, grams	974	974	938	900	1,015	894
Age at first egg, days.....	124	143	153	156	146	146
Average egg production for 7 months.....	73	62	64	22	93	26

The experiment bears out the work of two previous trials that mineral additions to chick rations which carry animal proteins are unnecessary. Also, it confirms the work of the Kentucky Experiment Station that rock phosphate is not a good source of minerals for egg production.

A Comparison of Methods of Feeding Laying Hens. A comparison is being made of free-choice feeding of grain, mash and milk, all-mash fed dry, all-mash part fed wet, and all-mash with milk available. The results of the first year are as follows:

	Grain, mash, and milk	All mash	All mash (part wet)	All mash and milk
Average production, eggs .....	160	146	168	149
Average mash consumption, pounds	19	71	73	69
Semi-solid milk, pounds .....	16	0	0	15
Corn .....	17	...	...	...
Wheat .....	35	...	...	...

The experiment is being continued this year.

Cane Molasses for Poultry. The project has been concluded and the data published in *Poultry Science*, Volume 8, No. 6, September, 1929.

Leg Weakness of Growing Chickens. Leg-weakness (Figure 1) occurs in growing chickens from 3 to 5 weeks old when brooded in batteries. Bone ash analysis shows that the trouble is not rickets.

Lactose Metabolism of the Laying Hen. A study has been made of the influence of lactose and milk feeding on the hydrogen-ion concentration of the intestinal tract of the chicken. The following data have been obtained:

Distinguishing Characteristic of Ration	Section of Intestinal Tract Examined	H-ion Concentrate Found (Average of 5 birds)
Meat scrap .....	Gizzard and crop	5 ph.
	Small intestine	7.2
	Cecae	7.4
Meat scrap and 15 per cent dried milk .....	Gizzard and crop	4.8
	Small intestine	7.3
	Cecae	7.2
Meat scrap and 15 per cent cane molasses .....	Gizzard and crop	5.3
	Small intestine	7.2
	Cecae	7.4



# OTHER PROJECTS IN PROGRESS

The following projects are in progress but have not been in operation a full year:

1. A comparison of liquid, semi-solid, and dried buttermilk for layers. Fifty Leghorns to a pen. A 7-month trial shows no difference in feeding value.
2. A comparison of a ration with and without cod-liver oil for birds which have free range. One hundred and fifty Rhode Island Reds to a pen. A 6-month trial has shown no benefit to be derived from feeding the oil.
3. A comparison of wet and dry mash for feeding layers. One hundred and twenty-five to a pen. During the 7 months of the test the pen receiving wet mash has averaged 16 eggs more per bird.

# PUBLICATIONS

A. R. Winter: Poultry Feeding Stuffs and Rations, Ohio State University Extension Bulletin No. 63, Revised, January, 1930.

E. L. Dakan and A. R. Winter: Culling Poultry, Ohio State University Extension Bulletin No. 93.

R. E. Cray: Poultry Housing, Ohio State University Extension Bulletin No. 94.

R. E. Cray and C. M. Ferguson: Raising Chicks, Ohio State University Extension Bulletin No. 59.

C. M. Ferguson: Control of Intestinal Worms in Chickens, Ohio State University Extension Bulletin No. 89.

# DEPARTMENT OF RURAL ECONOMICS

During the year a total of 373 students were enrolled, exclusive of the short course: This was an increase from 336 in the previous year and 246 in 1927-28. This increased enrollment lends encouragement to the efforts of the past two years to improve the quality of the teaching. There has been an increasing number of graduate students. The short-course enrollment increased to 42 from 25 last year.

# CHANGES AND ADDITIONS IN CURRICULUM AND TEACHING ASSIGNMENT

In the Autumn Quarter Rural Economics 602, Advanced Farm Organization, was given for the first time, with an enrollment of six in the course. The teaching assignment of Mr. McBride for the Winter and Spring quarters was taken over by Mr. Foster, who is employed under item F. 9 in the budget, while Mr. McBride was engaged in completing a research study in dairy marketing. In the Spring Quarter Mr. Morison's teaching was taken over by Mr. Arnold, while Mr. Morison was engaged in Farm Management research. Likewise, the Rural Sociology course, Rural Economics 405, was taught in the Winter Quarter by Mr. Smith in order that his unusual training and experience might be made available to students. A new course, Fruit and Vegetable Marketing, was added at the request of the Horticultural Department to be given for the first time next year.

# RESEARCH

## *Old Research Projects Continued During the Year*

1. Cost of Producing Farm Products in Greene and Medina Counties. Three bulletins have been published on the results of this study. The fourth is now in press.

2. Farm Costs in Putnam County. The collecting of the field data in connection with this project was terminated February 1, 1929. The data is now being compiled.

3. Costs and Standards of Family Living on Ohio Farms. The collecting of four years data under this project was completed January 1, 1929. The data are now being compiled and interpreted.

4. The Movement of Farm Population in Ohio. This project is rapidly nearing completion. Three preliminary reports have been issued. One of the final reports has been completed while the second and last should be completed by October 1.

5. Twenty Years of Ohio Agriculture. It was originally intended to publish this study covering the fifteen years from 1910 to 1925. However, the nearness and completeness of the 1930 census caused us to delay publication until the data for 1930 could be included.

6. The Grain Combine in Ohio. A preliminary report giving the results of the first year's study has been issued. The study was continued for a second year in cooperation with the Department of Agricultural Engineering.

7. A Study of the Changes in the Social Organization of Rural Communities in Four Ohio Counties. Progress on this project was delayed by the resignation of Mr. Schmidt. However, with the appointment of Mr. Smith the work is again progressing.

#### *New Research Projects Undertaken During the Year*

1. The Mechanical Corn Picker in Ohio. A report based upon the first year of this study has been issued. (Rural Economics, Mimeo. No. 24.) The study will be continued a second year in cooperation with the Department of Agricultural Engineering.

2. Land Utilization in Vinton County, Ohio. The field work upon this study has been completed.

3. The Market Movement of Ohio Wheat. This study is nearing completion. A manuscript will be presented for publication by August 1, 1930.

4. Farm Land in Ohio Acquired by Life Insurance Companies. Data are being secured from the records of the State Insurance Division to show the extent of the farm-land holdings of life insurance companies in Ohio.

#### *Research Projects Completed During the Year*

1. Large Land Holdings in Ohio. Published as Rural Economics, Mimeo. No. 17.

2. The Truck as a Factor in Livestock Marketing. Published as Agricultural Experiment Station Bulletin No. 440.

3. Direct to Packer Marketing of Hogs in Ohio. This study has been completed and is awaiting publication.

4. Wholesale Produce Markets in Ohio. Published as Agricultural Experiment Station Bulletin No. 443.

This is the fifth year that provision has been made for research work in the department. The list of publications will show that results are becoming available. Not only are these results being published, but a staff of men is being developed who demand respect in their respective fields. One of the pleasing features of the research work has been the keenness with which the results have been taken up by those concerned. Close contact with the Agricultural Extension Department, on the one hand, suggests many problems for study, and, on the other hand, has provided a ready market for the products of research.

During the year Mr. Falconer has served on the Research Committee of the Governor's Taxation Committee. Mr. Lively has served on the Rural Sociology Research Committee of the Social Science Research Council. Mr.



McBride has served in an advisory capacity on the Price Policy Committee of the National Milk Dealers' Association. Mr. Arnold has served as chairman of the Committee of Economists on the National Corn Borer Committee. Mr. Foster was elected vice-president of the American Farm Economics Association in December.

#### PUBLICATIONS

J. I. Falconer: Seventeen Articles, Bi-monthly Bulletin of the Ohio Agr. Exp. Sta., July, 1929 to June, 1930; Large Land Holdings and Their Operation in Twelve Ohio Counties (with P. G. Minneman), Rural Economics Mimeograph Bulletin No. 17; An Estimated Gross Cash Income from Sales of Agricultural Products from Ohio Farms by Counties (with R. E. Straszheim), Rural Economics Mimeograph Bulletin No. 22; Farm Land in Ohio Acquired by Life Insurance Companies through Foreclosure (with P. G. Minneman), Rural Economics Mimeograph Bulletin, June, 1929; Some Possibilities and Problems of the Federal Farm Board, Journal of Farm Economics, January, 1930.

C. R. Arnold: Timely Economic Information for Ohio Farmers, twelve issues (4 pp.), Agricultural Extension Department.

S. C. Hartman: Truck Farming in the Marietta Section, Washington County, Rural Economics Mimeograph Bulletin No. 20.

C. E. Lively: Type of Agriculture as a Conditioning Factor in Community Organization, Publications of the American Sociological Society, Vol. XXIII, pp. 35-50; Rural Community Organization in Ohio—A Specific Illustration, Publications of the American Sociological Society, Vol. XXIII, pp. 311-13; Sociological Research Ready for Utilization, Rural Sociological Adult Education in the United States, Social Science Research Council Monograph, pp. 29-51; Relation of Cash Receipts and Expenditure for Family Living, Bi-monthly Bulletin of the Ohio Agr. Exp. Sta., Sept.-Oct., 1929, pp. 174-75.

C. G. McBride: Milk Truck Costs of Twelve Representative Truckers to the Columbus Market for 1928 (with R. R. Innis) Rural Economics Mimeograph Bulletin, July, 1929; Milk Buying Plans, Bulletin No. 5, the International Association of Milk Dealers, April, 1930.

H. R. Moore: Population Mobility and Assessed Values of Property in Their Relation to Rural School Finance, (with P. G. Beck) Rural Economics Mimeograph Bulletin, Feb., 1930; Semi-Annual Index of Farm Real Estate Values in Ohio, Rural Economics Mimeograph Bulletin No. 23, Feb., 1930.

J. H. Sitterley: The Grain Combine in Ohio, Rural Economics Mimeograph Bulletin No. 18; The Mechanical Corn Picker in Ohio, Rural Economics Mimeograph Bulletin No. 24.

B. A. Wallace: The Present Status of Farmer Owned Elevators in Ohio, Rural Economics Mimeograph Bulletin No. 21.

V. R. Wertz: Estimated Income from the Ohio Agricultural Industry, O. A. E. S. Bulletin No. 450, March, 1930.

During the year members of the department have supplied articles for daily and weekly papers through the News Service of the Agricultural Extension Department.

#### DEPARTMENT OF SOILS

At the beginning of the past year, the Department of Soils was reorganized both as regards personnel and instruction. A combination of the department with the Agronomy Department of the Agricultural Experiment Station was effected whereby both were placed under the same direction and the personnel of both was pooled for purposes of instruction and research. The principal advantages expected from such a combination were: (1) the opportunity of employing members of the Station staff who were specialists in certain phases



of soils work for part-time University instruction, (2) the provision of more time for research by members of the teaching staff, (3) the closer coordination of the research and extension activities along soils lines in the state. In so far as it is possible to judge from one year's trial, the foregoing advantages are being realized. Under the present arrangement each member of the teaching staff, with one exception, is also a member of the agronomy staff of the Experiment Station. The research program of the Soils Department, excepting graduate-student projects, is being carried on as an integral part of the Experiment Station's program. All members of the department are on four-quarter appointment. The division of the staff member's time between research and teaching varies from approximately one-fourth research and three-fourths teaching to three-fourths research and one-fourth teaching. While each man's time during any given quarter is devoted almost entirely to either teaching or research, not to both, it is understood that his responsibility to both College and Station is continuous throughout the year.

The reorganization of the department has involved the following changes as regards personnel and duties of staff members:

Robert M. Salter, Chief of the Agronomy Department of the Experiment Station, was appointed Professor of Soils and chairman of the Soils Department. During the year his time has been divided about equally between the two institutions. The first three days of each week during the Autumn and Spring quarters and the first five days of each week during the Winter Quarter have been devoted to work at the College.

E. E. Barnes, formerly Assistant Professor of Soils, was transferred to Wooster with full-time Station appointment as Associate Agronomist. He has been given personal direction of most of the field investigations in soil fertility, the responsibility for this having rested previously upon the chief of the Agronomy Department.

G. W. Conrey, Associate in Agronomy, in charge of the Ohio Soil Survey, was Associate Professor of Soils and assigned to resident instruction during the Spring Quarter. He teaches Soils 603, "Origin and Classification of Soils," handles the lecture work in Soils 401, "Soil Management," and assists with research and seminary courses.

H. W. Batchelor, Associate in Agronomy, in charge of soil biology investigations, was appointed Assistant Professor of Soils and assigned to resident instruction during the Winter Quarter. He teaches Soils 605, "Bio-chemical Analysis of Soils," handles the laboratory work in Soils 401, and assists with research and seminary courses.

Appointment of G. M. McClure, Assistant Professor of Soils, was increased from three to four quarters. He was assigned to teaching work during both the Autumn and Spring quarters. During both quarters he handles the laboratory in Soils 401 and assists with research and seminary courses. In addition, in the Autumn Quarter, he teaches Soils 601, "Chemical Methods Used in Soils Investigation." He has been given responsibility for the ordering of all laboratory supplies for the department and for keeping all laboratories in efficient working condition.

F. J. Salter, Assistant Professor of Soils, formerly full-time extension chemist, was assigned to teaching duty during the Autumn Quarter. He was chosen to teach Soils 402, "Soils for Agricultural Teachers," because of his previous experience as a Smith-Hughes demonstration teacher in the Department of Agricultural Education. In addition he handles the lecture work in



Soils 401. The Agricultural Extension Department made provision for a part-time extension assistant, Mr. Maurice E. Hull, who assumed a part of Mr. Salter's former duties.

Richard Bradfield, formerly Associate Professor of Soils at the University of Missouri, was appointed Professor of Soils in the College and Associate in Agronomy in the Experiment Station, effective January 1, 1930. He was assigned full-time teaching duty during the Winter Quarter when he taught Soils 604, "Physico-Chemical Analysis of Soils," Soils 701, "Special Problems," and assisted with research and seminary courses. He is also expected to handle instruction in research courses during each of the remaining quarters of the year. His Experiment Station appointment carries the responsibility for all research projects involving physico-chemical or colloid studies both at Wooster and Columbus.

In addition to changes in personnel incident to the reorganization of the department, there has been one change in the department's extension staff. Assistant Professor M. V. Bailey, soils and crops extension specialist in southeastern Ohio, resigned January 1, 1930, and was succeeded on February 15 by D. R. Dodd, formerly of West Virginia University.

#### RESEARCH

The research work of the department may properly be divided into (1) departmental projects, (2) personal projects of individual staff members, and (3) graduate-student projects. As previously indicated, the first two groups are carried on as part of the Experiment Station program.

##### *Departmental Projects*

A number of field projects, supplemented by subprojects of a laboratory nature, were started in 1921. These were carried on continuously up until the end of the 1929 cropping season. Early in the past year the results of the first eight years' work were compiled and analyzed in a report submitted by F. E. Bear and C. L. Thrash to the Experiment Station for publication as a monograph bulletin. Following the preparation of this report, it was decided to discontinue certain projects, to recognize several, and to start a few new ones. These changes were made beginning with the 1930 cropping season. The field projects are under the personal direction of Mr. Thrash. The supplementary laboratory studies are in charge of Messrs. McClure and Bradfield. The following list comprises the more important departmental projects now under way.

1. A comparison of different legumes as sources of nitrogen for crops in rotation.
2. Comparisons of various times and methods of applying manure to the crop rotation.
3. Rock phosphate as a source of phosphorous for crops, with and without animal manures and sweet clover green manure.
4. The potash needs of alfalfa as related to the lime supply.
5. The influence of increasing amounts of sulfate of ammonia, upon the yield, protein content and quality of timothy when cut for hay at different stages.
6. A study of the effects of increasing amounts of super-phosphate upon the yield of crops in rotation and upon soil composition.
7. A study of various methods of fertilizer placement for corn. This, a new project, involves approximately 300 small field plots comparing eighteen

different methods of fertilizer placement for corn, two rates of application, and both standard and concentrated fertilizer mixtures. The movement of fertilizer salts in the soil is being studied by Dr. Bradfield by means of electrical conductivity measurements in the field, and by Mr. McClure by the application of chemical methods in the laboratory.

#### *Personal Research Projects of Staff Members*

1. The colloidal behavior of the heavy clays of northwestern Ohio (an introduction to a series of studies on soil structure).—Bradfield.

2. Oxidation-reduction reactions in soils.—Bradfield.

3. The determination of the acidity and degree of saturation of soils with bases by simplified methods.—Bradfield.

4. Soils as dynamic systems. Attention is being given to the possible application of various physico-chemical measurements to soils as a basis for a better understanding of how a crop-producing soil functions.—Bradfield.

5. A comparative study of concentrated (44 per cent) and ordinary (16 per cent) super-phosphates as regards their effects upon the growth and yield of wheat.—Thrash.

6. A study of the effect of various kinds of nitrogen fertilizers, applied in varying amounts and frequencies upon the growth and composition of pasture grasses. Begun in 1929. Involves 94 small field plots.—G. M. McClure.

7. Comparison of the effect of cultivation vs. scraping for the control of weeds and on corn yields. Begun in 1926.—G. M. McClure. (In cooperation with H. L. Borst of the Farm Crops Dept.)

8. Effect of fertilizers and frequency of cutting upon the root reserves of Kentucky bluegrass.—G. M. McClure. (In cooperation with C. J. Willard of the Farm Crops Dept.)

9. A study of factors affecting the biological fixation of atmospheric nitrogen and the economy of its subsequent utilization by crops.—H. W. Batchelor.

10. Studies of the efficiency of commercial soybean inoculants.—H. W. Batchelor.

11. The effect of kind, amount, and method of applying fertilizers on the growth and inoculation of soybeans.—H. W. Batchelor.

12. A study of the physical and chemical properties of the more important Ohio soils profiles.—G. W. Conrey.

#### *Graduate Student Projects*

1. A study of the adaptation of the Hohenheim system of pasture management to dairy farming conditions in the Columbus area. Carried on under a fellowship grant by the Barrett Co.—Robert M. Salter in charge; Robert Yoder, fellow.

2. An analysis of the effects of "Cal-Nitro" when used as a source of nitrogen for spring top-dressing or winter wheat. Supported by a research grant of the Synthetic Nitrogen Products Corporation.—Robert M. Salter in charge; Earl Jones, graduate student.

3. The influence of ecological factors upon the quality of soft winter wheats. National Milling Company research fellowship (Experiment Station).—Robert M. Salter in charge; E. G. Bayfield, fellow.

4. A comparison of precipitated carbonate of lime with other liming materials as regards speed of reaction with acid soils and ability to improve yields of legume crops. Pittsburgh Plate Glass Company research fellowship (Experiment Station).—Robert M. Salter in charge; W. H. Metzger, fellow.

5. A study of the assimilation of potassium and its translocation within the corn plant, when increasing amounts of potash fertilizer are supplied.—Robert M. Salter in charge; R. B. Foureman, graduate student.



PUBLICATIONS

Publications and articles by members of the department were as follows:

Robert M. Salter: Spring Nitrogen for Winter Wheat, Ohio Farmer, March, 1930; The Holdover Effects of Fertilizers, Ohio Farmer, Jan., 1930; Choosing the Right Liming Material, Ohio Farmer, Sept., 1930; A Soil Building Program for Ohio Orchards, Annual Proceedings of the Ohio Horticultural Society for 1930; and Nitrogen Top-dressing of Blue Grass Grazed by Beef Cattle (with Paul Gerlaugh and T. A. Welton), Fertilization of Timothy (with T. A. Welton), Spring Applications of Nitrate of Soda on Wheat (with J. S. Cutler), Maintenance of Lawn Grass (with T. A. Welton), Rate of Decomposition of Limestone in Soil (with C. J. Schollenberger), in 48th Annual Report of the O. A. E. S.

G. W. Conrey: The Composition of the Rossmoyne Silt Loam and its Extracted Colloid (with T. C. Green and J. G. Steele), Proc. Amer. Soils Survey Assoc., Vol. 11, 1930; The Composition of the Weathered Zone of the Illinoian Drift in Southwestern Ohio, Proc. Ohio Acad. Sci., 1930.

G. M. McClure: Nitrogen on Pasture Grasses at Columbus, 48th Annual Report of the O. A. E. S.

C. L. Thrash: Yields of Grain Crops Following Legumes and Timothy at Columbus, 48th Annual Report of the O. A. E. S.

DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY

The department has given much study during the year to the reorganization of the work of the elementary courses. Trial sections on the new five-hour basis were established and a technique developed that will permit placing all sections of the elementary courses on this basis next year. A training seminar for those who are to teach these courses next year was conducted with marked success.

The graduate work of the department has, as usual, been a heavy load and the number of students working toward the doctorate has been very encouraging. Twelve students received the doctor's degree during the current year.

PUBLICATIONS

Raymond C. Osburn: A revised List of the Fishes of Ohio, Ohio Journal of Science, May, 1930, 10 pages; Section Editor (Brachiopoda, Bryozoa, and Phoronidea) of Biological Abstracts.

Herbert Osborn: Notes on Porto Rican Homoptera, Journal of the Dept. of Agr. of Porto Rico, Vol. XIII, 1930, pp. 81-112, one figure; Report of the Scientific Trustees, Tropical Plant Research Foundation, Jour. Econ. Ent., Vol. 23, 1930, pp. 11-12; Obituary, Stephen Alfred Forbes, Jour. Econ. Ent., Vol. 23, 1930, pp. 472-73.

William M. Barrows; Laboratory Exercises in Zoology, World Book Co., Yonkers, N. Y., April, 1930. 103 pages, illustrated.

Alvah Peterson (with L. A. Stearns). The Seasonal Life History of the Oriental Fruit Moth in New Jersey during 1924, 1925 and 1926, New Jersey Agricultural Experiment Station Bulletin 455, 1929, 48 pages, 10 figures; The Problem of the Oriental Peach Moth report New York State Hort. Soc. for 1930; Some Remarks on the Present Status of Insecticidal and Biological Control Investigations for the Oriental Peach Moth, *Laspeyresia molesta* Busck, 59th Annual Report Ent. Soc. of Ontario, pp. 80-86; How Many Species of Trichogramma Occur in North America? Jour. New York Ent. Soc., No. 38, pp. 1-8, and 2 plates; Life History of the Oriental Peach Moth and Relation to Temperature, U.S.D.A. Tech. Bulletin; The Biology of Trichogramma Minutum in the Eggs of the Oriental Peach Moth and Codling Moth U.S.D.A. Tech. Bulletin.

Dwight M. DeLong: How Bordeaux Mixture Acts as an Insecticide, Amer. Fruit Growers Mag., Vol. 49, p. 6, Sept. 1929; The Bordeaux Insecticide Problem, American Fruit Growers Magazine Vol. 50, p. 32, Feb. 1930; "The Plant as a Factor in the Action of Bordeaux Mixture as an Insecticide (co-author with W. J. Reid, Jr., and M. M. Darley), Jour. Economic Ent., April, 1930 pp. 383-90; The Toxicity of Copper to the Potato Leafhopper (co-author with W. J. Reid, Jr., and M. M. Darley), Jour. Econ. Ent., Vol. 23, April, 1930, pp. 390-94; Further Observations on Bordeaux as a Leafhopper Insecticide, Proc. Ohio Vegetable Growers Assoc., 1930, p. 37; A New Species of Bean Leafhopper from Haiti (*Empoasca fabalis* N. sp.) Canadian Entomologist (in press); The Potato Leafhopper and How to Control It, U.S.D.A. Farmers Bulletin (in press) (co-author with J. E. Dudley); A Revision of the American Species of *Empoasca* Known to Occur North of Mexico, With a Special Study of the Internal Male Genital Structures, U.S.D.A. Technical Bulletin (in press).

Clarence H. Kennedy: The Theory of Nomenclature, Proc. Fourth Internat. Congr. Ent., Vol. II, pp. 665-70, 1929; The Origin of the Hawaiian Odonata Fauna and Its Evolution within the Island, Proc. Fourth Internat. Congr. Ent., Vol. II, pp. 978-81, 1929; Review of *A Handbook of the Dragonflies of North America*; by James C. Needham and Hortense B. Haywood, Science, Vol. LXX, pp. 503-5, 1929.

David F. Miller: The Effect of Temperature, Relative Humidity, and Exposure to Sunlight upon the Mexican Bean Beetle, Jour. of Econ. Ent. (about 10 printed pages) 4 plates, 9 citations.

Thaddeus H. Parks: The Control of Garden Insects and Diseases (co-author), pp. 3-48, 5 figs., Bul. Ohio State Univ. Agr. Ext. Service, No. 75, Dec. 1929; Sugar Beet Production in Northwestern Ohio (co-author), pp. 2-32, 16 figs., Bul. Ohio State Univ. Agr. Ext. Service, No. 102, 1930; Injurious Household Insects (co-author), pp. 3-40, 34 figs., Bul. Ohio State Univ. Agr. Ext. Service, No. 97, 1930; The Apple Maggot, pp. 113-17, Ohio State Hort. Soc., 1930, Annual Report, A State Program of Insect Control, Jour. of Econ. Ent., June, 1930; Facts to Consider in Selecting the Dormant and Delayed Dormant Sprays, Plant Disease and Insect Notes, Ohio State Univ., Jan., 1930 (co-author); White Grubs, Wireworms and Oats Smuts and How to Control Them, Plant Disease and Insect Notes, Ohio State Univ., Feb., 1930 (co-author); Ohio Spray Service and Spray Recommendations, Plant Disease and Insect Notes, Ohio State Univ., Mar., 1930 (co-author); Important Diseases and Insects of Raspberries, Plant Disease and Insect Notes, Ohio State Univ., Apr., 1930 (co-author); Cucumber and Melon Insects and Diseases, Plant Disease and Insect Notes, Ohio State Univ., May, 1930 (co-author); Rose Insects and Diseases, Plant Disease and Insect Notes, Ohio State Univ., June, 1930, (co-author).

Virgil N. Argo: Handling Package Bees, Bul. Ohio State Univ. Agr. Ext. Serv., 12 pages, 14 plates.

Winston E. Dunham: The Effect of Low External Temperatures on the Temperatures Within a Colony of Honeybees during the Summer, Jour. of Econ. Ent. (in press); Temperatures each Hour of the Day within a Colony of Bees, Gleanings in Bee Culture (in press).

Merlin P. Jones: Injurious Household Insects (co-author), Bul. Ohio State Univ. Agr. Ext. Service, No. 97, Feb., 1930, pp. 3-40, 34 figs.; The Mexican Bean Beetle, Proceedings 15th Annual meeting Ohio Vegetable Growers Assn., 1930, pp. 54-57; The Onion Maggot (*Hylemyia antiqua*) in Ohio, 1929 (abstract), Jour. of Econ. Ent., Vol. 23, Apr., 1930, pp. 394-98.

Lela A. Ewers: The Larval Development of the Freshwater Copepoda, Contribution from the Franz Theodore Stone Laboratory No. 3, 34 pp., 13 plates.

Lydia A. Jahn: The Internal Anatomy of the Mydas Fly, Ohio Journal of Science; 13 pp., 3 plates, Mar., 1930.

Fred W. Fletcher: The Alimentary Canal of *Phyllophaga Gracilis* Burin, Ohio Journal of Science, 10 pages, 2 plates, Mar., 1930.



A. C. Cole, Jr.: *Arachnara subcarnea* Kell. (Lepidop.: Noctuidae) a host of *Masicera senilis* Rond. (Dipt.: Tachinidae), Ent. News, Vol. 41, No. 7: 225, 1929; *Muscina Stabulans* Fall. (Diptera: Muscidae) parasitic on *Arachnara subcarnea* Kell. (Lepidop.: Noctuidae), Ent. News, Vol. 41:112, 1930; The Preservation of Lepidopterous larvae by injection, Ent. News, Vol. 41: 106-8, 1930.

Frank R. Elliott: An Ecological Study of the Spiders of the Beech-Maple Forest, Contribution No. 96, Dept. of Zoology and Ent., 22 pp.

Charles C. Plummer: 1929. The White Pine Weevil in New Hampshire (co-author), Univ. of New Hampshire Exp. Sta. Bul. No. 247, pp. 1-32, tables I-VII, 4 figs.

#### OTHER ACTIVITIES

Professor Raymond C. Osburn is director of the Franz Theodore Stone Laboratory, an account of which is attached to this report. Professor Osburn gives all of his attention to this work during the Summer Quarter and some time must be allotted to it throughout the year, especially during the Spring Quarter, when plans are being made for the summer work. He has also given a considerable amount of time to the State Division of Conservation, advising in regard to the research and propagation work especially. He has also had general direction of the State's part of the research work on Lake Erie Fisheries. During the Autumn Quarter he spent a week heading a committee which investigated the fish hatcheries of the State in detail and suggested improvements for their management to the Division of Conservation. He has also carried on committee work in connection with various scientific societies of the country.

Professor Herbert Osborn is a member of several important committees of national and state scientific organizations. He is chairman of a committee on State Parks and Conservation, and a trustee of the Research Fund of the Ohio Academy of Sciences. Following the resignation of Dr. F. H. Kreckler from the University, Professor Osborn accepted the editorship of the *Ohio Journal of Science*. As director of the Ohio Biological Survey he has been able to bring a number of projects to completion, and several bulletins have been issued within the year. It should be mentioned also that he collaborates with several large museums of the country in connection with studies on Hemiptera.

Professor W. M. Barrows completed the laboratory manual to accompany his textbook on zoology for high-school use. He has given a great deal of time during the year to our revised program of elementary teaching, in preparation for the small-section teaching work which we will inaugurate next October. Professor Barrows spent his vacation quarter in Florida, collecting and studying the spiders of the region.

Professor D. M. DeLong collaborated during the whole Summer Quarter with the U. S. Bureau of Entomology. He was stationed at the University for this work and found time to direct the research of a number of graduate students. Several important papers have resulted from this connection. Professor DeLong has also been called to Washington several times during the year for consultation on the control of insect pests.

Professor Alvah Peterson carried on research work at the University during the summer particularly in the field of insect parasitology, and has produced a number of papers as the result of his research. He also has been called upon for consultation at Washington and several of the adjoining states.

Professor C. H. Kennedy has charge of the entomological work at the Franz Theodore Stone Laboratory during the summer. He has been editor of the *Annals of the Entomological Society of America*, the most important publication of its kind in the world.

Professor W. J. Kostir spent the Summer Quarter at the University in research and when Dr. F. H. Kreckler resigned in August, Professor Kostir took over the management of the important work in elementary zoology. A very large percentage of his time during the year has necessarily been taken up with this work. He found time to accept the Chairmanship of the Biological Science Section of the Ohio Educational Conference.

Professor D. F. Miller was employed during the summer by the U. S. Bureau of Entomology to carry on research on the behavior of the Mexican bean beetle.

The younger members of the staff in all cases spent their vacation quarter in study and research. Nearly all of them have attended meetings of the various scientific societies during the year, especially during the Convocation Week at Des Moines, where the meetings of the American Association for Advancement of Science, Entomological Society of America, and American Association of Economic Entomologists were held.

#### THE FRANZ THEODORE STONE BIOLOGICAL LABORATORY

This laboratory has proven itself to be a noteworthy addition to the scientific equipment of the University. I submit the report of the director verbatim.

With the new laboratory building completed and ready for use in all details, the session of 1929 was completely satisfactory and successful. The dedication ceremonies on June 22, immediately preceding the opening of the session, were attended by about 180 visitors. Most of these were biologists from various parts of the country. Governor Myers Y. Cooper with various other state officials and President George W. Rightmire and other University officials were present. Mr. Julius F. Stone, the donor of Gibraltar Island, took a very interested part in the proceedings, and Mr. Charles D. Barney of Philadelphia, son-in-law of Jay Cooke, the former owner of the island, was also present. Professor E. G. Conklin of Princeton University made the special address of the occasion. I need not elaborate here, as a special bulletin giving the addresses of the various speakers has been published by the University. The Laboratory Staff, as for several years previous, consisted of:

Raymond C. Osburn, Ohio State University, Director  
Frederick H. Kreckler, Ohio State University, Assistant Director  
C. H. Kennedy, Ohio State University, Professor of Entomology  
S. R. Williams, Miami University, Professor of Zoology  
L. H. Tiffany, Ohio State University, Professor of Botany  
M. E. Stickney, Denison University, Professor of Botany

to which were added Mr. J. F. Harper, Assistant, and Jessie B. Bush, Stenographer. Our very efficient caretakers, Mr. Theodore H. Philips and Mr. Ernest Miller, contributed very greatly to the work of the Laboratory and deserve a great deal of praise for their thorough and patient efforts.

The student body and independent research workers were increased somewhat in numbers over any previous year, so that there were all that could be provided for conveniently. Six independent investigators spent all or a portion of the season in research at the Laboratory. Forty-six students were regis-



tered for credit, about a half dozen of these being undergraduates. While undergraduates have profited by the work and in general have done good work, it will be our policy henceforth to limit attendance to graduate students and investigators only. In spite of the fact that several undergraduates have been refused admission for the coming session, the Laboratory already at this early date (May 10) is practically filled for this summer (1930).

A digest of the students for the summer of 1929 shows how widely the opportunities afforded by the Laboratory are appreciated. Thirteen states were represented and 21 different institutions, and more than half of those present had never attended Ohio State University. This was their first contact with the University work and many of them will be back for more work. Twenty-six of those now registered in advance for the 1930 session have already spent at least one summer at the Laboratory. This contact has also resulted in bringing many graduate students to the University for further work toward advanced degrees.

Furthermore, two of the Ph.D. degrees granted in Zoology during the year had their research problems assigned in connection with the work at the Laboratory. The same is true also of six Masters' degrees. A considerable number of other problems are under way for Doctors' and Masters' theses.

Contribution No. 3 from the Franz Theodore Stone Laboratory has recently been issued. This paper by Dr. Lela A. Ewers deals with the larval development of the freshwater Copepods, a group of small Crustacea that are of the greatest importance in the food of young fishes. By the improvement of cultural methods, Dr. Ewers has been able to rear these organisms through the whole of the life history and has settled many mooted questions. Her work has already attracted attention in other countries.

Such publications as this will do more to make the Laboratory favorably known than any other type of advertising, and they will also bring to the Laboratory in exchange many publications of value to our work. A thousand dollars a year set aside for this purpose will do more for the Laboratory than that amount spent in any other possible way.

The Physical Plant at the Laboratory is now in excellent condition. With the fine laboratory building, the new dining-hall, the repairs to the Cooke Mansion, etc., we have the most satisfactory small laboratory in the country. Of course, it cannot be compared with the Marine Biological Laboratory at Woods Hole, Miss., with its \$1,500,000 plant and an endowment of nearly \$1,000,000 besides, but we have a very satisfactory laboratory for freshwater work for the numbers that can be accommodated.

More equipment is very desirable, especially for the chemical laboratory room. This should be fully equipped for any kind of chemical work related to aquatic biology. Professor Lyman estimates that about \$2,500 to \$3,000 will be necessary to properly equip this room for such work.

More microscopes, especially of the binocular type, are much needed, as we cannot ship many of these from the University without crippling our summer research work in the Department of Zoology and Entomology, and the shipment of such instruments is always detrimental to them.

Special equipment of various kinds for particular research projects is needed and provision should be made for such as the demands arise. We are well provided with larger boats for our work but should have more rowboats. Such items as glassware, collecting nets, etc., are always in demand and additions must be made every year.



The library of the Laboratory will be given special attention this coming summer, and a librarian will be in charge to organize the books and pamphlets deposited there and study our needs. There is no doubt of the inadequacy of the present library collection. No doubt it can be augmented to a considerable extent without expense by filling up the gaps in return for our contributions, and donations by individual scientists will eventually make it a working library, though \$1,000 a year could be very profitably spent in acquiring books for reference and journals dealing especially with work in our lines of research.

#### TEACHING

The *course* work now offered is perhaps sufficient without duplicating the work offered at the University and by restricting the work to that of an aquatic laboratory. As our work is now restricted to graduates, there is less call for course work and more for the direction of special problems and research.

The course work offered is well handled by experienced teachers, all of whom have had experience elsewhere. They are better known in their respective fields, in most cases, than those handling similar work at Woods Hole, where most of the course work is handled by younger men.

*Where we are lacking* is in a staff of better-known men in certain fields to direct research for those students who desire to take up the study of problems. Those of us who are there can handle certain phases satisfactorily, but there are some special subjects in which we should have *research advisers*. At Woods Hole, to use it again as an outstanding example, all of the better-known men are on the research staff. They do no formal teaching in courses, but advise with young investigators, suggest problems, methods of attack, etc., and perhaps give a general lecture of two. We should have a few such men, for example, in parasitology, embryology, protozoology and general physiology.

A *Resident Naturalist* should be appointed as soon as provision can be made for winter work. This means that heating arrangements should be provided for a portion of the laboratory building. This man should be an expert limnologist, capable of carrying on research in this line throughout the year and of directing graduate students in this field.

As far as our present lines of work are concerned, we need offer no apologies. Dr. Krecker's work in Animal Ecology is quite satisfactory; it would be difficult to find a man better equipped for the work in entomology than Dr. Kennedy; Woods Hole has attempted to secure Dr. Tiffany in Algology several times, while my own contribution in directing research on various phases of fish life has drawn students from various states. Five persons who were granted their doctorates in recent years, Drs. R. V. Bingham, W. C. Kraatz, L. F. Edwards, Lela Ewers and J. W. Price, have worked at the Laboratory under my direction on various problems related to fisheries work, and a number of others are now so engaged.

The Laboratory is about filled up at present. Investigators require more space for work than do students in courses. In the future our selection will have to be made on the basis of quality, which will not be a bad thing for the standing of the Laboratory. Woods Hole has for many years been accepting students only as they are especially qualified for certain kinds of work.

About 50 students and investigators are already registered for work during the coming summer from 25 different institutions, of which 12 are from outside the state. Most of these will be in attendance during the whole of the session. A few students will attend only the first six weeks, and a few investigators will come only during the last half of the session.



It is with great pleasure that I am able to announce that Western Reserve University is offering a Scholarship at the Laboratory. This came about as a result of a lecture at Western Reserve University in February, followed by a luncheon at which I was asked to tell about the work of the Laboratory. The fund of \$150 will pay all the necessary expenses of a graduate student for the whole session. This is the first scholarship to be offered by another university and should interest other colleges and universities in the state to do likewise. I believe that Ohio State University should offer several of these scholarships on a competitive basis and open to anyone.

It must not be forgotten that the Central Ohio Anglers' and Hunters' Club has offered a scholarship for the past three years and is providing the funds again for the coming session. The choice of the candidate has been left to my judgment. This is the first time in the history of such clubs that one has interested itself in the education of workers in conservation, and that interest is one of the fruits of my work for the Ohio Division of Conservation.

The Laboratory has about reached its capacity again. Hence, if we are to increase the numbers to whom the opportunities of the summer laboratory can be offered, we must arrange for the expansion of the laboratory building. Approximately forty men and sixteen women can be taken care of in our dormitories, in addition to those who live at Put-in-Bay. If this number were all engaged in course work, the Laboratory would accommodate them, but this is not the case with research students and investigators who require more space.

#### REPORT ON OFFICIAL TESTING FOR 1929-30

With the object of raising to a higher standard the average production of the dairy breeds and securing an authenticated and permanent production record to which reference can be made when selecting animals for breeding, the cattle clubs and breed associations have established a Register of Merit and Advanced Registries.

The system enables the breeder desirous of improving his herd to ascertain the true ability of his cows, not only to his own satisfaction but his customers' as well and helps establish the value of herd sires. Official testing does more toward introducing efficiency into dairy methods, than any other one thing.

Authenticated tests are tests periodically supervised by a representative or approved agent, known as the official tester, who is trained and appointed by the Dairy Department of the State Agricultural College in each state. The supervisor certifies to the weight of the milk and the per cent of butterfat that it contains, as determined by the application of the Babcock test.

Testing as a whole is in a transitory state at the present time. Nearly everyone concedes that the very existence of the various dairy breeds will depend upon the amount of testing and culling which is done in the coming years, yet, it is not quite evident what the most effective form of testing will be in the future.

The herd test adopted by the Ayrshire Breeders Association has been watched with particular interest by the other breed associations. This plan of testing was inaugurated by that association more than two years ago. January 1, 1928, the Holstein-Friesian Association adopted a herd test plan, and July 1, 1929 the American Jersey Cattle Club instituted what is known as the Herd Improvement Registry. On January 1, 1930 the American Guernsey Cattle Club instituted the Herd Improvement Registry.

The prime object of the herd test is to obtain a record of the entire herd for the purpose of making definite herd improvement. It is designed to give the breeders a herd test that can be recognized as an official herd average and can be recorded and published as such. Under the plan all cows in any herd are tested, so that the producing ability of each individual cow in the herd may be ascertained.

The following is a table of the different breeders and the number of cows in each breed being tested under Advanced Registry, Register of Merit, and Herd Improvement plans:

Breed	Plan of Testing	Breeders	Cows
Holstein	Advanced Registry.....	42	155
	Herd Improvement.....	29	608
Guernsey	Advanced Registry.....	88	278
	Herd Improvement.....	12	114
Jersey	Register of Merit.....	68	262
	Herd Improvement.....	4	48
Ayrshire	Advanced Registry.....	1	3
	Herd Improvement.....	7	89
Brown Swiss	Advanced Registry.....	7	14
Shorthorn	Advanced Registry.....	4	25
Total.....		262	1,596

The test supervisors are sent out by this department and all records received, checked, and forwarded to the national breed associations who keep all records and exercise a general supervision over the official testing. Students supervise many of the tests, which not only furnishes employment but also gives them a wonderful opportunity to gain a practical knowledge of dairying which is possible in no other way.

Six of the supervisors devote all their time to official testing. In addition three students take care of the local work. The others listed on the following page are men who do official testing in connection with their cow-testing association work.

#### *Official Supervisors:*

C. D. Converse	James C. Hambleton	John H. Reed
Geo. Damschroder	O. E. Merkle	G. Strohmaier

#### *Official Supervisors—Students:*

O. Norling-Christensen	Eldon Groves	Wilbur Tullis
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#### *Cow Testing Men Doing Official Supervising:*

Sylvan Alwine	Gerald Hammond	Norman Neiswander
Wilbur Amstutz	Harry Harris	Halbert Pennell
L. P. Bailey	Paul Hoskin	H. C. Pennell
Clifford Brown	Luther C. Hothem	D. C. Phillips
Delmar Bull	Glenn Kornhaus	Cyril K. Riggs
Carl Cronbaugh	John Laybourne	T. Allen Sims
Clifford Dumford	Chas. E. Miller	Samuel Speir
Ray Eppley	F. W. Morrow	Fisher Stillely
Raymond Fry	Delmer Moser	

The amount of testing has been slowly increasing during the past year and indications are that with the institution of the herd-test plan, the increase will be greater the coming year. Thirty-five different test supervisors have taken care of the testing. Since the time required each month for the cows on yearly test has been reduced from 2½ to 1½ days, the number of supervisors required for the work is smaller.



In payment for their services, the supervisors receive for Advanced Registry work: 2½ days, \$7.50; 1½ days, \$5.00; each additional day \$3.00. For Herd Improvement work they receive \$3.50 per day. For 7-day test, a charge of \$1.50 is made for the preliminary milking and \$3.00 per day afterward. In addition to this the supervisor receives necessary expenses; transportation at 3.6 cents per mile, mileage not to exceed railroad mileage. An additional charge of 50 cents for office work is made on each bill. This is to cover necessary office expenses. Occasionally it is used to take care of the delinquent accounts of breeders.

In the past year 19,128 different tests were made, most of them each month during the year. In addition 50 retests and check tests have been made.

The following map shows the number and location of herds in the various breeds throughout the state.

NUMBER AND LOCATION OF HERDS IN VARIOUS BREEDS



# OFFICIAL TESTING

## FINANCIAL SUMMARY FOR YEAR ENDING, JUNE 30, 1930

CASH	
Balance on hand, July 1, 1929.....	\$ 1,099.91
Deposits from July 1, 1929-June 30, 1930.....	\$16,088.99
Cancelled Check, Kenneth Shireman, Inspector.....	3.50
	<u>16,092.49</u>
	\$17,192.40
Cash Disbursements from July 1, 1929-June 30, 1930	
Payments to Inspectors.....	\$15,216.10
Alice Gillam, Clerical Services.....	300.00
Miscellaneous supplies .....	53.72
	<u>15,569.82</u>
Cash on hand, June 30, 1930.....	\$ 1,622.58

ACCOUNTS RECEIVABLE	
Accounts Receivable, July 1, 1929.....	\$ 3,334.18
Add: charges from July 1, 1929-June 30, 1930.....	15,600.71
	<u>\$18,934.89</u>
Less: Cash Payments, July 1, 1929-June 30, 1930.....	\$15,984.01
Adjustment on Account.....	4.00
	<u>15,988.01</u>
Balance, Accounts Receivable, June 30, 1930.....	\$ 2,946.88

ACCOUNTS PAYABLE	
Due Inspectors, July 1, 1929.....	\$ 3,117.18
Add: Inspections from July 1, 1929-June 30, 1930.....	\$14,605.71
Cancelled Check, Kenneth Shireman.....	3.50
	<u>14,609.21</u>
	\$17,726.39
Less: Payments to Inspectors—July 1, 1929-June 30, 1930.....	\$15,216.10
Adjustment on Account.....	4.00
	<u>15,220.10</u>
Balance, Accounts Payable, June 30, 1930.....	\$ 2,506.29

NOTE—A similar report is submitted monthly to the Secretary.

That the official testing work has probably done more to advance the dairy business than any other one factor in lowering the cost of production has been well illustrated in the past year. For cows producing about 150 pounds butterfat, the cost of one pound of fat will range from \$1.00 to \$1.20, while with cows producing 400 pounds butterfat, the cost is from 48 to 50 cents a pound.

With this increase in production, we are glad to report that we have this year in Ohio one of the most productive cows of the world. In fact, in the Firestone herd, one cow gave 149.3 pounds of milk in one day. This makes



her the second highest producing cow that has ever been reported anywhere. It takes a great deal of close observation to keep the records of these high-producing cows. Check tests had to be made to satisfy the public.

A cow in its natural state produces from forty to sixty pounds butterfat a year. We are now contemplating making whole herds produce from four to six hundred pounds fat on the average, with some cows going as high as one thousand to eleven hundred pounds. With this increase there is a tendency to develop either pathological conditions or a poor milk supply. This fact has been recognized by the more thoughtful dairymen for some time, and they knew there would be a reaction. For the world is in need of the dairyman who can produce the wholesome and nutritious milk which will develop the human body. This is the real purpose of the dairy business. Consequently, a number of these producers have been very anxious to determine some of the limiting factors and what is necessary to still produce a normal milk supply with these high and economical productions; in other words, producing a good milk at a low cost.

It is for this reason that we have attempted to solve some of these problems for quite a number of years, and we have succeeded to a certain extent. But in order to accomplish this we have been led out into various trails of endeavor. For illustration, we find that in order to develop a high Vitamin A, which is so essential in good milk, we are compelled to grow hays of a special character and to dry them artificially. In order to develop Vitamin B, we are obliged to go into the germinating processes of some of the grains; and in order to develop Vitamin C, it was necessary to develop crops which contained this factor and to determine the methods of preserving it. To develop Vitamin D, we were obliged to take up the raying of milk cows, and construct stables which had the greatest amount of sunlight during the winter months, and also to develop feeds that maintained these rays of light during the summer months. Vitamin E, which apparently is a reproductive factor, had to be provided for. By the development of high production, a reproduction pathology has developed in some animals. To overcome these difficulties special feed and special pasture had to be prepared. Then lastly, it becomes very necessary that this special milk be produced in especially constructed and designed stables in order to produce the milk with a great practical development of sanitary conditions.

While this has led us into various ramifications of science, it has, however, been a matter of interest to a great many of the men in the dairy business who have at heart the health and physical development of the public. It is for this reason that many of these men have taken keen interest in the research work carried on on the various farms in connection with official testing.

While it is very important to follow up the official testing, I have been asked to act as a consultant in introducing the various new feeding systems that we have inaugurated to meet the special conditions on the various farms. The construction of new dairy barns, of milking machines, hay-driers, pastures, milk-cooling systems, raying machines which have been developed on some farms, and exercising machines, has been entered into. Besides, there are numerous requests for information which have to be answered. I have not participated in the institute work so very much on account of this special work we are carrying on. While there are a number of requests for talks, it is impossible to carry on the official work and go out and give numerous talks; hence, I have accepted but a few invitations this past year. A more detailed report of the work I have been carrying on is summarized in a talk

that was given before a Joint Conference of the American Medical Milk Association, American Medical Association, and the American Certified Milk Producers' Association. This article will be published in a short time. I have also prepared an article which summarized the work of Iodine Feeding which will be submitted for publication. Later on we will summarize the Vitamin work in connection with pastures. We are also issuing a report in cooperation with Dr. Scott on the effects of feeding mineral oils to cows. This experimental work has been carried on in the Department of Pathology.

OSCAR ERF,

*Professor of Dairying in Charge of Advanced Registry Work.*

## REPORT OF THE JUNIOR DEAN

H. W. NISONGER

The addition of a half-time assistant this year has made it possible for the Junior Dean to enlarge upon the activities initiated last year and to expand into new areas. Since the opening of the Autumn Quarter, Miss Eve Elizabeth Turnbull of the School of Home Economics has acted as Assistant to the Junior Dean and in a very commendable manner has assumed major responsibility for the personnel work with women students enrolled in the junior area in Home Economics. This provision has made it possible for the Junior Dean to devote an increasing amount of his time to problems of instruction.

### ENROLLMENT IN JUNIOR AREA

The enrollment of students in Agriculture and Home Economics in the junior area of the College of Agriculture as reported by the Registrar for the years 1928-29 and 1929-30 is shown in the following table:

QUARTER	FRESHMEN			SOPHOMORES			GRAND TOTAL
	Men	Women	Total	Men	Women	Total	
Autumn, 1929.....	196	83	279	77	84	161	440
Winter, 1930.....	204	67	271	85	79	164	435
Spring, 1930.....	145	55	200	42	57	99	299
Autumn, 1928.....	155	105	260	100	70	170	430
Winter, 1929.....	136	81	217	111	72	183	400
Spring, 1929.....	86	76	162	52	56	108	270

The figures in the column to the extreme right show an increase in total number of students enrolled in this area for each quarter of the present year compared with the previous year. The table also shows a comparatively small number of sophomore men students resulting from a low enrollment of entering freshmen men last year; also a decrease in freshman women students this year. This decrease is more than balanced, however, by the rather marked increase of freshman men students this year. An analysis of the figures shows the following increase of freshman men over each corresponding quarter last year: 26.5 per cent for the Autumn Quarter, 50 per cent for the Winter Quarter, and 68.5 per cent for the Spring Quarter. One of the factors contributing to this increase will be discussed under "Pre-College Contact with High-School Students."



## COUNSELING WITH STUDENTS

Last year the Junior Dean found the individual conference with students to be indispensable as a means of discovering the problems confronting each student. It also proved to be a most effective method of assisting students in making adjustments necessary to success in college.

During the first six weeks of the Autumn Quarter a conference was held with each freshman. After the mid-quarter reports were issued, practically every freshman came back for a second interview. Many of the instructors were consulted to the progress of their respective students. This gave data which could be used as a basis for diagnosing student's difficulties and making recommendations for improvement.

Through these interviews an attempt was made to discover the student's intellectual and vocational interests, his attitude toward the subjects being studied, his habits of work, social activities, time spent in working for self-support, living conditions, previous preparation and many other items which might vitally affect his success in college. Where difficulties were discovered an attempt was made to suggest remedies. For example, where students found it too difficult to carry a full schedule and work for self-support the load was reduced. Where the living conditions were found unsatisfactory, the suggestion was made that the student change his living quarters. Where the student found that he was pursuing a subject for which he did not have the basic preparation, the course was removed from the card and suggestions made for getting the necessary preparation. Students were frequently found with health difficulties and were advised to have a thorough examination. Others were found with poor habits of work, and a remedial program was suggested. Some of the students were called to the office for a conference while others sought counsel voluntarily.

Counseling with students has continued to consume a major part of the Junior Dean's time throughout the year. During the Winter and Spring quarters the sophomores as well as freshmen were interviewed. The work with the sophomores assumed more of the character of vocational guidance, although some of the students still have college adjustment problems which demand attention.

No new departure was made in the program of counseling in the junior area this year except to refine as far as possible the techniques of interviewing and to develop more useful personnel records.

## SURVEY OF AGRICULTURE

For a number of years a credit course in Survey of Agriculture has been required of all freshmen students in Agriculture. This course consisted of lectures to the freshmen one hour each week for two consecutive quarters and carried one hour credit each quarter. These lectures were given by the Dean of the College and the various department heads. It was designed to assist freshmen students in making the necessary adjustments to college life and to acquaint them with the nature of the work offered in the College of Agriculture.

The Survey of Agriculture has performed a much needed service in orienting the student into college life.

With the inauguration of a more complete orientation program in the junior area of the college, it was thought that the service of this course could

be strengthened by changing somewhat the character of the course and by concentrating our efforts during the Autumn Quarter. It was, therefore, changed to a three-credit-hour course offered in the Autumn Quarter only and required of all entering freshman men. It was offered for the first time in the Autumn Quarter of 1929 and was taught by the Junior Dean.

The course is designed to orient the student in three ways:

1. College work. This phase includes a discussion of such topics as, budgeting time, how to prepare assignments, learning to work effectively in different courses, individual aptitudes and what they mean, and how to organize the subject matter of a course.

2. Agriculture as an industry. An attempt is made to give the students a broad picture of the nature of agriculture, its possibilities and its problems.

3. Vocational opportunities in agriculture. All available facts about the vocational opportunities for Agricultural College graduates, training and experience required for success, salaries and opportunities for advancement are discussed.

The course was organized as follows:

All students met for lecture and assignment on Monday at 11:00 o'clock. Provision was made in the schedule for six small discussion sections meeting twice per week. Every student spent three hours per week in class work.

The conduct of this course made a total teaching load of 13 hours per week for the Junior Dean. The service of one student assistant was provided to help with the course.

It is difficult to evaluate the results accomplished by such a course. The only tangible evidence available which may reflect the influence of this course is the scholastic performance of the freshman class of this year compared with that of last year. For example, during the Autumn Quarter of 1929, 62.6 per cent of the students made a point-hour ratio of 2.0 or above as compared with 42.3 per cent of the students making the same point-hour ratio in the Autumn Quarter of 1928. How much of this improvement in scholarship is due to the work in the survey course and how much is due to other factors is only a question for speculation.

#### SURVEY IN HOME ECONOMICS

During the Winter Quarter of 1929 at the suggestion of the Dean of the College, the Junior Dean initiated a program designed to acquaint high-school seniors in rural schools with the nature of work offered in the College of Agriculture and the vocational opportunities both in Agriculture and Home Economics. This was attempted in the following way:

1. A selected list of names of high-school seniors interested in Agriculture and Home Economics were secured from high-school principals, teachers of Vocational Agriculture and Home Economics, and County Extension Agents.

2. A 26-page mimeographed bulletin entitled, "What Would a College Education in Agriculture Mean to Me?" was written by the Junior Dean in cooperation with the Dean of the College and the Faculty. This together with a friendly letter of explanation was sent to 2,600 high-school boys. A similar bulletin entitled, "The School of Home Economics," which was prepared under the direction of Miss Lanman, was sent to approximately two thousand girls.

3. Contact was made with teachers of Vocational Agriculture and County Extension Agents enlisting their help in counseling with boys. Information about the College of Agriculture was furnished to these people in an effort to make their counseling more intelligent. The Junior Dean attended the annual



conference of teachers of Vocational Agriculture and talked with them about their students who were planning to enter the College.

4. Contact was made with many of these boys through correspondence and through the boys' visiting the office. Much time was spent during the summer months making these contacts. An opportunity was provided for meeting a number of these boys at the annual Vocational Livestock Judging Contest held on the campus in May, which brought approximately fifteen hundred boys to the University. Many teachers of Agriculture and County Agents brought boys to the office for conference during the summer. Through these combined opportunities, the Junior Dean was able to meet personally about 75 per cent of the freshman men students before the opening of Freshman Week.

This program has enabled the Junior Dean to furnish teachers pre-college guidance information which they could use in counseling with students. With this information available, they have been able to encourage many promising students who might otherwise never have gone to college, and to prepare the minds of students who show little promise of success and perhaps prevent them from the tragedy of college failure.

This has undoubtedly been a factor in increasing the freshman enrollment in the College of Agriculture this year as indicated above. A similar program, somewhat expanded and intensified, is under way for the coming year.

#### INTERVIEW SECTIONS

An effort has been made this year to expand the work begun last year of encouraging instructors in freshman courses to know their students personally. This was accomplished by designating certain sections as "interview sections" in which the instructor agreed to have at least one friendly interview with each student in the section. The following table shows the number of instructors cooperating and the number of students reached each quarter:

	<i>Instructors</i>	<i>Number of Sections</i>	<i>Number of Sections</i>
Autumn, 1929 .....	15	18	319
Winter, 1930 .....	13	14	344
Spring, 1930 .....	6	6	106

One of the major problems confronting instructors interested in extending the benefits of the interview to all of the students in their classes is the time required to do the work thoroughly. Counseling with students individually is extremely time-consuming.

For example, in elementary Botany a normal teaching load for an instructor is three sections of 35 students each, making a total of 105 students. Instructors have found that they could make this personal contact with each student in one of the sections together with the students who come to them voluntarily from the other two sections without having the program become burdensome. But to attempt systematic interviewing of all three sections was an impossible task.

Dr. Tiffany has made a detailed study of the problem during the past year. In the Winter Quarter he taught two sections and interviewed all of the students systematically. We found that the time consumed in interviewing all students in two sections was equivalent to teaching a third section. Whether the results obtained would justify the extra cost of reducing the teaching load one-third is a problem for the future.

The question also arose as to the effect of the personal interview upon the quality of work done in the course as measured in terms of grades. In order

to secure data which would throw light upon this question, Dr. Tyler was requested to study this problem. Five instructors were found who were teaching at least two sections of elementary Botany. In each case one section was being interviewed and the others were not. Each student in an interview section was paired with a student in a section not being interviewed and taught by the same instructor. Students were paired on the basis of such criteria as intelligence percentiles, age, sex, and, in the case of Botany 402, on the basis of previous grade made in Botany 401. Objective tests were used in the mid-terms and final examinations and were uniform for all sections. Grades on these objective tests were averaged and used as a measure of the students' preference in the course. The results are shown in the following table:

PAIRS INTERVIEWED	GRADES MADE BY STUDENTS		GAIN FROM INTERVIEWING
	Interviewed	Not Interviewed	
Botany 402 ..... 45 pairs	67.9	62.1	5.8 $\pm$ .6
Botany 401 ..... 101 pairs	78.7	73.5	5.2 $\pm$ .4

The figures show that on the basis of 146 pairs of students there was a gain of over 5 per cent on the percentage grading scale for the students interviewed. This means approximately a half letter grade on our present grading scale. While the average gain for the group as a whole is significant the gain made by certain individuals is quite striking. This study gave some very illuminating data on how instructors differ in their ability to influence the quality of learning with students of different levels of ability. This study has opened up a fertile area for research in the field of instruction.

#### IMPROVEMENT OF INSTRUCTION

The Junior Dean has devoted much time during the past year to the problems of instruction. In this he has had the most generous cooperation of the faculty. Progress in this area will be discussed by departments in which the work was done.

##### BOTANY

For a number of years the Botany Department has been working toward the improvement of their courses in elementary Botany. They have stated in very definite terms the objectives which they hope to reach and have evaluated the subject matter and teaching methods in terms of the educational outcome desired.

As a result of all of these years of study they have reached the following conclusions:

1. That elementary Botany should be taught from a functional point of view. That it should be a preparation to meet the biological problems in life rather than a preparation for advanced courses in Botany.
2. That training in the scientific method of thinking should be one of the major objectives of the course.
3. That the size of classes should be such as to permit effective class discussion. Sections at present are limited to 35 students.
4. That laboratory work should be properly correlated with class discussion and should serve a very different purpose from that of the past.
5. That all teaching be done by trained instructors instead of using untrained graduate assistants in the laboratory as had been done heretofore. Under the former plan a student very frequently had one instructor in lecture and another in laboratory.



These ideas were tested out last year by organizing a limited number of experimental sections in elementary Botany each quarter throughout the year. The class time for the experimental sections was reduced from seven hours to five hours per week, each class period being one hour in length. The lecture and laboratory were no longer separated. The results of this experiment proved so satisfactory that the whole program in elementary Botany was reorganized on this basis during the present year. Certain other improvements have been made.

1. For a number of years Professor Sampson has assumed responsibility for the supervision of elementary Botany. In the past he has been using many effective supervisory devices such as staff conferences, preparation of teaching outlines, individual conferences with instructors, and having young instructors visit the classes of more experienced teachers. To supplement these devices Professor Sampson began last Autumn Quarter to visit classes in order to assist wherever possible. He met a very fine response on the part of the instructors. Provision has been made so that Professor Sampson will have more time available for this phase of supervision next year.

2. Making the assignments more definite. Under the new program of teaching elementary Botany the lack of adequate daily preparation for discussion on the part of the students soon became apparent. By reducing the number of hours of class work from seven to five, it became necessary for the students to spend more time in preparation outside of class. More complete assignments seemed to be the only logical solution to this problem. Professor Sampson spent much time during the Autumn Quarter in preparing specific assignment materials and in discussing this problem in staff meetings.

3. Measuring the educational outcomes in Botany. The tests used in elementary Botany last year were fairly objective. An effort has been made during the present year to improve their reliability, objectivity, and diagnostic value. This work has been done in cooperation with Dr. Tyler of the Bureau of Educational Research.

#### ZOOLOGY

Last spring the Junior Dean recommended that an experimental teaching program be undertaken in elementary Zoology similar to that in elementary Botany. This recommendation was made after a very thorough study of the course as it was being conducted.

Acting upon this suggestion Professor Barrows, with the assistance of Professor Price, completely reorganized the elementary courses and taught the work on an experimental basis during the Summer Quarter. The results were so gratifying that sections have been continued each quarter throughout the year.

The following are regarded as major elements in the experimental program in Zoology:

1. Stating clearly the objectives (ultimate and immediate) to be reached in the course in the light of the educational needs and interests of the students enrolled.
2. Selecting and evaluating the subject matter and teaching methods in terms of the desired objectives
3. Selecting and organizing demonstrations and laboratory materials to facilitate the learning process most effectively.
4. Constructing measuring devices which will give an accurate objective evaluation of the educational outcomes and which will have maximum diagnosis value
5. Providing for individual differences
6. Training instructors to teach elementary Zoology with the functional point of view and on the new basis

Members of the staff have worked continuously on these problems during the past year, and remarkable progress has been made. Professors W. M. Barrows, D. F. Miller, and J. C. Price have carried the burden of the experimental program and much credit is due them.

The entire program in elementary Zoology will be conducted on the new basis next year.

*Supervision.*—Professor Barrows will assume responsibility for the supervision of elementary Zoology next year. His duties will include organization and direction of the teaching of all sections in Zoology 401 and 402, direction of the experimental sections which will be continued to study further possible improvement, and the training of future Zoology teachers. He plans to supervise the classroom teaching in this area next year.

*Measurement.*—One of the essential elements in an experimental program in teaching is a method of evaluating objectively the outcomes of instruction. Reliable measuring devices are the only means for determining progress. Dr. Tyler was asked to assist in working out these measurements. He has cooperated with the instructors throughout the year devising pre-tests, mid-terms, and final examinations. A fairly complete measurement program has been developed for Zoology 401 and 402.

The questions on these tests are grouped by sections, each of which gives a fairly complete measure of an objective of the course. The questions are also organized to give maximum diagnostic value.

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The development of these measuring devices makes it possible to study experimentally many problems in teaching. It also enables the supervisor to compare the quality of work done from quarter to quarter. All of the test papers are being filed with the Bureau of Educational Research. An analysis of the results is being made each quarter by Dr. Tyler. The possibilities for study in this area are almost unlimited.

*Student Progress Record.*—When you ask a student how he is getting on in a subject he usually replies in some such terms as "fairly well," "not so good," or "good; I got 94 on my mid-term." In other words students usually have a very generalized abstract notion of what constitutes satisfactory progress in a subject. In order to assist students in analyzing their progress in terms of the desired objectives of the course, a student-progress record was devised on which might be charted their progress. (See Student Progress Record form.) This record form is placed in the hands of the student, and he is asked to indicate his standing on the graph opposite each objective at successive intervals during the quarter when he receives his test results. The form has had only limited use this year and may be changed with future use. It seems to possess motivating value.

*Providing for Individual Differences.*—At the beginning of the Spring Quarter Professor D. F. Miller arranged to have one of the small laboratories available afternoons with a teaching assistant in charge. Two types of students were selected from the experimental sections and sent to the special laboratory for individual instructions: (1) those who were not making satisfactory progress in the course and who needed instruction to supplement the regular class work; and (2) those students who showed unusual ability in the subject and



were interested in carrying individual projects which enabled them to delve deeper into certain phases of the subject.

The teaching assistant has been studying the problems of diagnosing student difficulties and of appropriate remedial treatment. She has also been attempting to find appropriate projects for superior students.

Next year those who show special aptitude for independent work in Zoology 401 will be taught as a group in 402. Plans have been made to expand this program as far as room facilities and teaching force will permit during the coming year.

STUDENT PROGRESS RECORD ZOOLOGY 401, SPRING, 1930

Student .....	Attainment						
Qualities	0	1	2	3	4	5	6
A. Understanding of technical terms							
B. Factual information							
C. Ability to draw inferences							
D. Ability to test hypotheses							
E. Ability to apply principles							
F. Completeness of write-ups							
G. Choice of language in write-ups							
H. Organization of write-ups							
I. Contributions to class discussion							
J. Microscope skill							

Interpretation of Graph

1. This is low even at the beginning of the course. A student who is no higher than this by the close has done extremely poor work.
2. This is fair attainment at the beginning, but a student who is here at the end of the course is considerably below the passing mark.
3. This achievement early in the course represents a good beginning, but a student who is at this point at the close is just below passing.
4. One who makes this achievement at the beginning is doing superior work. A student reaching this point by the close of the course has attained the minimum for passing.
5. A student making this achievement early in the course is exceptional. To reach this point by the close of the course represents good work.
6. A student making this achievement early in the course stands remarkably high. To reach this point by the end of the course indicates superior attainment.

*Training of Instructors.*—Each quarter during the present year a seminar has been conducted for graduate assistants, assistants, and instructors in ele-

mentary Zoology who were interested in studying the problems of teaching. The number enrolled in these seminars ranged from 13 in the Autumn to 6 in the Spring Quarter. A few individuals attended all three quarters. Most of the instructors who will be teaching on the elementary level next year participated in these seminars at least one quarter.

These people observed the teaching in the experimental sections each day and met twice per week as a group for discussion of their observations. These observations gave a concrete basis for a discussion of college teaching problems.

Professor Barrows directed this work in the Autumn Quarter and Professor D. F. Miller in the Winter and Spring quarters.

#### HOME ECONOMICS

During the past year the staff in Home Economics has been making a study of the subject matter and the teaching methods in elementary courses. As a result of this study a completely reorganized program will go into effect next year. Changes have been made in both the subject matter and in the sequence of teaching the various groups of problems.

Home Economics 401 will deal chiefly with a study of textiles and the selection of the ensemble. Home Economics 402 will deal primarily with the principles of design and construction of clothing. As the course has been conducted in the past, the laboratory and lecture have been rather widely separated. Next year the students will be grouped so that the discussion and the laboratory work will be closely integrated.

A measurement program has also been worked out in this area in cooperation with Dr. Tyler of the Bureau of Educational Research. It includes a pretest, two mid-terms, and a final examination for 401. A limited amount has been done on the measurement program for 402. This remains to be completed next year.

A progress-record card set up in terms of the objectives of the course similar to the one used in Zoology has been devised for Home Economics 401. This reorganization program has been directed by Miss Turnbull, assistant to the Junior Dean.

#### A GUIDANCE PROGRAM FOR THE SENIOR AREA

While the Junior Dean is clearly not responsible for the guidance work in the senior area, the guidance program cannot function properly for the college as a whole unless there is some integration between the junior and senior areas. For example, the Junior Dean assumes responsibility for the educational and vocational guidance of freshmen and sophomores. At the beginning of the junior year a student must select a major and is assigned to a faculty adviser who will guide him throughout the remainder of his college course. The Junior Dean has much information which would be of great service to the Faculty adviser when the student comes to him at the beginning of the junior year. This information would enable the adviser to deal more intelligently with the student.

Too frequently in the past advising has consisted simply of signing the student's schedule card. Not enough time has been spent on a discussion of the student's program of courses, self-analysis and vocational opportunities, and qualities essential for success in the student's chosen line of work.



As the first step in setting up a more effective continuous program of guidance from the freshman to the senior year, the Junior Dean in cooperation with the departments of Agricultural Education and Animal Husbandry has attempted to discover the kind of information which would prove most valuable to the faculty adviser in his guidance work. Also to determine the kind of permanent personal records which should be set up in the departments as a basis for effective guidance and placement.

Miss Turnbull has worked out a similar program for Home Economics.

#### JUNIOR COUNCIL

The Junior Dean has attended the weekly meeting of the Junior Council throughout the year and has served on two special continuing committees: (1) He is chairman of the committee authorized to study experimentally the results of the interview sections. The committee has suggested a program for next year. (2) He is chairman of the pre-college guidance committee which has been authorized to prepare a guidance bulletin for the high-school student and also evaluate the results of the use of the pre-college guidance bulletin for high-school principals.

At the request of the Junior Council he visited the University of Minnesota to study their freshman program. A study was made of the following problems:

1. Pre-college guidance program
2. Organization of the student counseling program
3. Remedial work
4. Improvement of instruction
5. Curriculum provision for individual differences
6. Survey and orientation courses
7. Freshman week
8. Handling of probation students

A report of the findings during this visit was made to the Council at the Mansfield meetings.

#### FRESHMAN WEEK

The Junior Dean attempted to fit into the general program as outlined by the Freshman Week Council. He served as chairman of the committee which arranged for the college night program. He participated in the program arranged for parents. Much time during Freshman Week was devoted to counseling with students.

#### TEACHING IN AGRICULTURAL EDUCATION

During the first six weeks of the Summer Quarter the Junior Dean taught a course for graduate students in Agricultural Education entitled, "Project Work in Vocational Agriculture." Fourteen students were enrolled in this course, most of which were experienced teachers. The content of the course was based largely upon the results of a research program which the Junior Dean carried on when he was Professor of Agricultural Education and which has been continued by the department since that time.

## MEETINGS ATTENDED

The Junior Dean has during the year presented the following papers at important meetings:

1. The Function of the Junior Dean, at the college section of the State Guidance Conference called by the State Department of Education.
2. Humanizing College Teaching at the Freshman Level, at a meeting of the American Association for the Advancement of Agricultural Teaching held in connection with the meeting of the Land-Grant College Association in Chicago.
3. The Responsibility of the Agricultural Colleges for the Training of Agricultural Teachers, at a meeting of the Supervisors and Teacher Trainers of Vocational Agriculture of the North Central States Region in Chicago.

He also participated in the 4-H Club Congress and appeared on the programs of several Farmers' Institutes during the year.

In conclusion the Junior Dean wishes to express his appreciation to the Dean of the College and the President of the University for their continuous wholehearted encouragement and support. Also for the masterful leadership of Dr. W. W. Charters. Whatever may have been accomplished during the year is due in a large measure to inspiration gained from working with these men and to the generous cooperation of the faculty.



## COLLEGE OF ARTS AND SCIENCES

Dean, W. J. SHEPARD

### EXPANSION OF THE COLLEGE AND CHANGE OF NAME

At the beginning of the Autumn Quarter, 1929, the Department of Bacteriology was transferred from the College of Medicine, and the departments of Chemistry, Mathematics, and Physics were transferred from the College of Engineering to the Arts College. In connection with these transfers, the name of the College was changed from College of Liberal Arts to College of Arts and Sciences. The addition of these four important departments to our College is a matter of sincere gratification. The integration of these departments into our college organization has been easily accomplished, though necessarily involving considerable increase in the duties of the Dean. The purpose and ideals of the College are more fully represented and expressed with the inclusion of these scientific departments, and the faculty has been strengthened and invigorated by the addition to its number of the strong groups of teachers on their several staffs.

### ENROLLMENT

The enrollment in the College for each of the four quarters, with the voluntary withdrawals, was as follows:

Quarter.....	Summer	Autumn	Winter	Spring
Arts .....	452	2,254	2,057	1,866
Arts—Education .....	44	97	89	73
Total.....	496	2,351	2,146	1,939
Withdrawals—Men .....	11	40	42	35
Withdrawals—Women .....	3	27	20	6
Totals.....	14	67	62	41

Comparison of these figures with those of 1928-29 shows an increase of 30 in the Summer Quarter and a decrease in each of the other quarters as follows: Autumn, 185; Winter, 199; Spring, 174.

### DEGREES

The total number graduating during the year was 381, distributed as follows:

	Summer	Autumn	Winter	Spring	Total
B.A. ....	63	25	43	242	373
B.S. ....	..	1	..	7	8
	63	26	43	249	381

As compared with the preceding year this is an increase of 23.

### HONORS

The annual honor roll published in October, 1929, which is based on the maintenance of a 3.5 point ratio for the three preceding quarters, included the names of 91 persons as against 68 for the preceding year. Of these 91, 52 were men and 39 were women. The names added at the subsequent convocations were

28 in number, a total of 119, which is 24 more than for the preceding year. The convocation honors were distributed as follows: Summer, 1; Autumn, 0; Winter, 3; Spring, 24. During the year 31 students graduated with honors, based upon a cumulative point ratio for the entire four years of 3.5. Graduation with honors is not to be confused with the annual honor roll of the College. There were also 3 students who graduated with distinction in their particular fields of concentration, and one who graduated with high distinction.

#### DISMISSALS, PROBATION, AND REINSTATEMENT

One of the most encouraging features of this review of the year's work is the substantial decrease in the number of students placed on probation and dismissed from the University. We believe that this is largely due to the effective work that is being done in improving teaching, in the reduction in the size of sections in the elementary area, and in development of personnel work. During the year there were 238 students dismissed as against 328 for the preceding year, a decrease of 90. The distribution by quarters and by the various faculty rules which apply is shown in the following table:

Rules by which students were dismissed	Summer	Autumn	Winter	Spring	Total
On Probation .....	10	21	56	28	115
Two-Thirds Rule .....	5	52	16	15	88
Nine-Quarter Rule .....	1	2	5	7	15
Twelve-Quarter Rule .....	1	..	1	..	2
Probation more than twice....	2	6	3	6	17
Special Action .....	..	1	..	..	1
Total.....	19	82	81	56	238

Of these 238 students dismissed, 116 were Freshmen, 71 were Sophomores, 40 were Juniors, 9 were Seniors, and 2 were Special students.

During the year there was a total of 342 students placed on probation, as against 491 for the preceding year, a decrease of 149. Distributed by quarters the probation cases were as follows: Summer, 17; Autumn, 160; Winter, 86; Spring, 79. Distributed by classes they were: Freshmen, 182; Sophomores, 80; Juniors, 42; Seniors, 28; Specials, 10.

During the academic year, June 14, 1929 to June 13, 1930, 208 petitions for reinstatement were submitted to the Petitions Committee. Of these, 82 were declined, one deferred, 52 approved unconditionally, and 73 approved conditionally upon the student's passing an examination on two or three books. Of the 73 students whose petitions were approved conditionally, 56 took the examination, and 27 passed. The total number of reinstatements was, therefore, 79.

#### THE PROBLEMS OF THE ARTS COLLEGE

The College of Arts and Sciences is confronted with one problem which does not, at least to anything like the same degree, concern the professional schools. This is the problem of defining and clarifying its aims and objectives. The aim and purpose of each of the other colleges in the University is reasonably well determined by the profession which it serves. This does not mean that there are not curricular and teaching questions in the professional schools. But these are all related to a fairly definite objective, a reasonably clear conception of what is the purpose and aim of the school. We are agreed that the purpose and aim of the College of Arts and Sciences is to provide the means



to a liberal education. But in what does a liberal education consist? What is its content? What are its criteria?

In our annual report for 1928-29 we undertook to state in general terms our conception of a liberal education, and some of its various elements. It is not to be defined in terms of content, bodies of knowledge, specific courses. Rather is it to be conceived as a way of life through which the individual may develop certain capacities, proficiencies, and attitudes. But a way of life is a far broader and more inclusive, as it is also a far more indefinite and indeterminate, concept than that of a course of study. We are endeavoring to provide the means to a liberal education. Our product should be liberally educated men and women, not lawyers, or doctors, or teachers, or engineers, or business men. It is a question whether it is possible or desirable to thus separate the aim of a liberal education from that of professional training. Surely there should be an element of liberal education in the work of every professional school. Is there a place in our universities for colleges of arts and sciences which offer no more concrete or tangible goal to their students than that of becoming liberally educated men and women? This question is being raised with considerable point in various quarters. For us who firmly believe in the value of the college of arts and sciences, and of its objective of a liberal education to be obtained, not incidentally to a professional training, but as the primary purpose of a four-year's way of life, it is imperative that continuous thought and attention be given both to the clarification of our conception of the meaning of a liberal education and to the development of arrangements and devices by which this way of life may be more effectively achieved. We cannot complacently accept the present status of our College as satisfactory. There is all too much justice in the shafts of criticism which are directed against us. There is every reason for serious concern in the relative decline in the enrollment in liberal-arts colleges as compared with professional schools the country over.

If a liberal education be conceived of as a way of life through which the individual is assisted in developing capacities, proficiencies, and attitudes of mind, it is obvious that we must turn our attention in directions hitherto neglected. Our ideals can be achieved only through definite schemes of arrangements and devices, in the perfection of which we must be ready to engage in considerable experimentation. There appear to be three broad lines along which such experimentation should take place. These are: (a) the curriculum, (b) instruction, (c) environmental conditions. These should not, however, be viewed as independent and unrelated aspects of the way of life in which we are interested. They must all be integrated by a single purpose and aim. And, furthermore, there must be preserved that degree of flexibility, that opportunity for adjustment which is essential to meet the needs of widely different types of students.

*The Curriculum.*—In the liberal-arts colleges throughout the country a great deal of attention is just now being given to the curriculum. The free-elective system which in the last decade of the nineteenth century found general acceptance, in reaction to the old rigid classical and Latin-scientific courses of study of our grandfathers, assumed the ability of each student to plan his college work with practically no guidance or requirements. The utmost flexibility was thus introduced into the curriculum. A wealth of new courses in every field of human learning was presented to the student from which he might select as he chose. There is no question as to the liberalizing



and broadening effect of this reform. The individual's interest was given full opportunity to assert itself. New departments of instruction sprang up in our universities like mushrooms. Teaching staffs were greatly enlarged. Very definitely the universities took all knowledge to be their province, and their catalogs and bulletins were expended into large volume, including descriptions of literally hundreds of courses. Experience of a decade or so with the free-elective system was convincing to the effect that the pendulum had swung too far; that it is not true that "the greenest freshman can plan his course of study for himself better than the wisest professor can plan it for him." It was discovered that in a very large number of cases the courses of study of students were veritable hodgepodes; that in others there was such a degree of concentration as to exclude from the student's perspective whole fields of knowledge and deprive him of that broad understanding of the world in which he lives that must certainly be one element of a liberal education. It was discovered that student selection of courses was often based upon the most adventitious and unsubstantial considerations. The hour at which a course was scheduled, the fact that a friend was electing a particular course, the reputation that a course was a "snap" often were decisive factors. Students graduated from college without having dug beneath the surface in any subject, their completed education consisting entirely of superficial surveys.

The reaction against the free-elective system was inevitable, resulting everywhere in the introduction, in one form or another, of a system of requirements and of majors. President Lowell of Harvard, expressed the new educational philosophy in the statement that the student should know something about everything and some one thing well. Generally it was sought to achieve this educational purpose by a scheme of group requirements which would compel the student to acquire at least an elementary knowledge of a number of the major fields, and the further requirement that he should specialize to the extent of a fourth to a third of his entire work in one rather restricted area. Considerable freedom of election was preserved, and opportunity thus offered for the pursuit of individual interest. Accompanying the prescription of definite requirements there has been an increasing insistence upon a reasonable performance on the part of the student. It is no longer possible in the better grade of institutions to graduate by the mere passing of the required number of courses. A reasonable degree of excellence has come to be generally demanded.

The present system undoubtedly represents a distinct advance over the free-elective system. There are, however, a number of serious problems in connection with the present system which are giving concern to faculties and administrative officers in colleges of arts and sciences. Various modifications and certain rather revolutionary proposals are being introduced or are under consideration. These problems and proposals must be viewed in the light of our gradually clarifying conception of the aim and purpose of the college. The curriculum is not an end in itself. It is an essential element in the scheme of devices and arrangements that constitute the way of life which for four years we ask our students to pursue. It is to be tested and judged by the influence and effect it produces in transforming the callow and unsophisticated youth who come to us from the high schools into really liberally educated men and women.

The College of Arts and Sciences at Ohio State University has not been unmindful of the problems connected with the curriculum. In our report of



last year it was stated that a standing Committee on the Curriculum had been established and that it was expected that some rather significant changes would be made. The difficulties encountered are greater than we anticipated, and we cannot report at this time any improvement effected. The Committee, however, made decided progress in the study of its problems, and it is confidently hoped that it will be able to report certain important recommendations for action by the Faculty early in the autumn. The proposals of the Curriculum Committee will be definitely related to the organization of the College into junior and senior divisions, which has already been voted and which only awaits the acceptance by the Faculty of a satisfactory course of study to become effective. The problems at Ohio State are similar to those in other institutions; but, viewed from our own angle, what are the deficiencies and shortcomings of our present course of study?

Among the criticisms of our curriculum which we must recognize as valid are the following: *First*, in spite of our system of group requirements and majors, there is still too much opportunity for dispersion and scattering of work. An examination of the courses elected by our students discloses the fact that a large number of them apparently have not integrated their work around a central interest. There is too much general "browsing" in widely separated and unrelated fields. The rich and varied offerings of the College are too often sampled, cafeteria fashion, and a well-balanced intellectual diet is not secured. In the first two years, the ground requirements do not leave a great deal of opportunity for free election, but the student's choice of groups and of subjects within the groups is frequently made on grounds quite extraneous to any well-considered educational aim. It is, however, in the junior and senior years that this dispersive tendency is most evident. Theoretically the student's major adviser is supposed to exercise a large influence not only in the field of his major, but with respect to all his work. In practice, however, the function of the major adviser is too often performed in a most perfunctory fashion, and no real advice or guidance is given. So long as a minimum of forty hours work is done in the major field, the student is left free to roam at will over the entire curriculum. The tendency has been to select a disproportionately large number of elementary courses in a wide variety of fields. The faculty have partially met this situation by requiring for the future that at least sixty hours of work must be elected from 500 and 600 courses, that is, advanced courses. But there is still too large an opportunity for meeting the requirements for graduation by merely amassing the necessary hours of work in widely unrelated fields.

*Second*, in our endeavor to secure a range and diversity of knowledge through the group requirements, we have not provided an opportunity for our underclassmen to develop and pursue a dominating interest. From sixty-five to eighty hours of the ninety are mortgaged to these requirements. Either some of these must be postponed until the junior year or the student is left little chance in the first two years to follow his interest. There is too much prescription in this area. At the same time the requirement of only ten hours in each of five groups is not enough to afford more than the most elementary perspective of the fields selected. A modification of the requirements which would reduce the total amount of required work and at the same time increase the amount in the fields selected would appear to be in the line of progress. It is particularly obvious that the present freshman-sophomore requirements are not well adapted for students who do not continue in the College beyond



the first two years, whether because they enter one of the professional schools or because they are compelled to leave the University. The curriculum for a junior division which is intended to provide the best possible education within the limits of a two-year period cannot demand the amount of required work which is involved in our present group requirements.

*Third*, the curriculum requirements are too largely based upon the departmental organization and departmental offerings of the University. With respect to both freshman-sophomore requirements and the field of concentration in the junior-senior area, inter-departmental arrangements should be developed. The departments, however useful and necessary as instruments of university organization, are, after all, quite arbitrary divisions. A larger interplay between them, a greater degree of cooperation, is necessary in order to meet the requirements of an effective educational program.

*Fourth*, with regard to certain subjects, particularly English and foreign languages, the requirement of certain courses of all students appears quite indefensible. Proficiency in these fields would seem to be the end sought, and the method by which this proficiency is achieved would seem to be a matter of indifference. This suggests the substitution of proficiency tests for course and hour requirements, or at least their introduction as an alternative to certain of the courses prescribed at the present time.

*Fifth*, our curriculum makes little special provision for the gifted student. We have, indeed, provision for honors courses; but so long as instruction in these courses must be carried on by members of our staff already overburdened with heavy teaching-loads of regular work, we cannot expect them to develop. The provision of special opportunities, involving adequate means of instruction and guidance, for those students who offer high promise of becoming leaders in the world of tomorrow is an inescapable duty of the college and university. A study of the system of reading for honors at Swarthmore, of the experimental college at the University of Wisconsin, of the tutorial system at Harvard, suggests lines along which we might profitably experiment. Education is always an adventure, and we should not hesitate to accept a share in the hazard of new ideas.

It is with reference to these deficiencies in our course of study that the Curriculum Committee is preparing its proposals.

*Instruction.*—However adequate the curriculum, the achievement of the educational objective is impossible without a high quality of instruction. As suggested in our report of last year this is a subject to which the College is giving continuous and earnest attention. There can be no question as to the general competence of our instructional staff. Not only are our teachers generally well trained, proficient, and enthusiastic, but there is an unusually fine morale and spirit in our faculty. There is a willingness to cooperate, a readiness to discuss new proposals, to engage in suggested experiments, which is one of the most encouraging factors in the situation. We enjoy a rare atmosphere of good will.

To maintain the present high standard of teaching efficiency necessitates the greatest care in recruiting new members for our staff. Without disregarding the factor of productive scholarship, we must vigilantly scrutinize the qualifications of prospective members of our staff as teachers. It is generally true, however, that the best teacher is one who is also effectively pursuing some research. Whether this eventuates in important publications or not, it must have a constantly invigorating effect upon the teacher himself, and



through him upon the students in his classes. In those large departments where a considerable staff of teachers of elementary courses is required, the question has arisen as to the desirability of making this work a university career. Should we hold out the promise of indefinite tenure and reasonable promotion to the teacher of elementary courses who does not qualify as a scholar? The alternative is to recruit this section of our staff from younger and less experienced persons who are pursuing graduate studies and whose interests and qualifications promise high future attainment. This course necessarily involves a much larger annual replacement, as it is obviously possible to advance to the higher ranks only the very exceptional instructor and then only when there is a vacancy. The wise course would seem to be to follow generally the second policy, though not so exclusively as to deprive the University of at least a few seasoned teachers in the elementary area. It would be most unfortunate if the elementary work in these large departments were staffed wholly or chiefly by persons whose interests and competence did not go beyond that work. Even at the price of some inexperience and a relatively large overturn, it is better that our junior staff be composed chiefly of men and women with real scholarly interests, who have the promise of advancing, at this university or elsewhere, to the higher university ranks to which scholarship is a prerequisite.

So far as possible, it is, of course, desirable that members of the senior staff in the large departments keep in touch with the elementary work by occasionally teaching a section of an elementary course. This has a definitely tonic effect, in bringing an experienced and scholarly teacher into comparison with his junior colleagues. It dignifies and emphasizes the great importance of work in this area, and it is always a valuable experience for the senior. Under present conditions, however, it is quite out of the question to expect members of the senior staff to undertake to teach more than an occasional section of an elementary course. Their time and energy is too fully absorbed in advanced work.

Progress has been made in the College of Arts and Sciences this year in organizing "interview sections" in elementary courses. We have not been able to do as much in this respect as some of the other colleges, but with increased staff it is expected that the Junior Dean will be able in the coming year to organize a considerably larger number of these sections, which have proved their real value.

Effective teaching depends upon adequate equipment and facilities. Garfield's remark concerning Mark Hopkins and the log, in emphasizing the supreme importance of the good teacher, entirely neglected this factor. It has been said as a counterweight to this sage utterance of Garfield that a university is essentially a collection of books. In the development of our library we must not lose sight of the need of large numbers of duplicate copies of reference works. Our teaching is too largely under "the tyranny of the textbook."

The teaching-load has a direct relation to the problem of instruction. The best results cannot be expected of teachers who are carrying an excessive schedule. It is obviously impossible to set a single standard of a reasonable teaching-load. In elementary work, and particularly in those fields where the University is offering courses which are really of high-school grade, a considerably heavier load should be expected than in advanced fields or in fields where a great deal of preparation is demanded of the teacher. An examination of the teaching-loads of our staff makes evident the fact that, while in



some instances and perhaps in some general areas the load is not excessive, many of our teachers are overburdened. Particularly is this true in advanced work where our senior faculty are not only conducting 600 courses but attempting to direct graduate work. As this work develops the situation becomes increasingly acute. When one realizes that the weight of committee work and other administrative duties also falls most heavily upon these senior members of our staff, it is clear that considerable relief is needed. It is to these mature scholars that we ought to look for the ripest and most valuable fruits of research. But research, in any considerable amount, is quite impossible for many of them under present conditions. Their cheerful acceptance of the situation springs from a splendid loyalty to the University, but they should not be exploited by the imposition of heavy teaching-loads to the detriment of their productive scholarship. We should frankly recognize that eight and even six hours of teaching is in many cases as much as should be reasonably expected.

If we view liberal education as a way of life in which certain capacities and proficiencies may be developed, and not as the mere acquisition of knowledge, it is apparent that the instructional procedure must include large opportunity for the development of the students' initiative. Not mere absorption and reproduction of the facts of a textbook but the independent attack on problems, the organization and interpretation of facts for which a search must be made, the presentation in lucid and articulate form of the result of investigations should be emphasized. It is here, more than anywhere else, that our instructional methods are deficient. We are not suggesting that research in the advanced graduate sense should be extended down into the College. But that a reasonable amount of independent investigation constitutes an essential element of a liberal education is definitely implied in our conception of the aim and purpose of the College of Arts and Sciences. Something is, of course, now being done in this respect, particularly in the laboratory sciences. But very much more ought to be done. The difficulties and obstacles are twofold and have already been mentioned. Effective independent work by the student necessitates adequate equipment. Our present library facilities practically limit the amount of such work in certain fields. Further, this type of work necessitates a degree of individual direction and guidance which is not possible with the heavy teaching-loads which our staff now carry. The conclusion is evident: we must largely improve our equipment, and particularly our library facilities; and we must considerably expand our teaching staff in the senior area, thus making possible a substantial reduction of the teaching-load.

*Environmental Conditions.*—If we think of a liberal education as a way of life which our students shall pursue for four years and through which we may expect them to acquire certain capacities, proficiencies, and attitudes, it is apparent that we must give attention not merely to the curriculum and to methods of instruction, but also to all those environmental conditions which influence and shape their lives and character during the quadrennium in which they are with us. Here we have indeed been neglectful. We have assumed that our obligation was absolved in the provision of a rich and varied course of instruction, a competent teaching staff, and adequate library and laboratory facilities. We have indeed made amazing provision for the recreational needs of our students. But this has been done without much thought of its educational value or import. There has been no integration between work and play. There has been no attempt to subordinate extra-curricular activities to the



intellectual objectives for which the University and the College exist. Our students live compartmentalized lives. There is no fundamental and fruitful relationship between their activities on the athletic field and in the fraternity house and their work in the classroom, the library, and the laboratory. Certainly, it should not require argument that for the students in the College which seeks to provide the means to a liberal education, and in the University generally, there should be a dominating and integrating interest and that this should be an intellectual interest. A pervasive, permeating intellectual atmosphere is an essential characteristic of a true university. Such an atmosphere is largely lacking in our community.

The first step toward the solution of the problem of environmental conditions is the general recognition that the problem exists. We shall make little progress in this regard until we frankly realize that there is an athletic problem, a fraternity and sorority problem, a problem of extra-curricular activities. The intellectual life of our students must come to be the primary and fundamental concern of college and university policy.

Even when the supreme importance of this problem is recognized, probably its solution cannot be achieved by any frontal attack. We are dealing here with a very real but a very imponderable factor in education. We cannot hope to transform the atmosphere of the University overnight. The habits, the mores, the schemes of value of a great student body are marked by an inertia which can only be overcome gradually and slowly. Only by a process of infection from a few carefully selected centers may we hope ultimately to inoculate the entire community with the virus of a consuming intellectual interest. We should, therefore foster wherever practicable the organization of groups of serious-minded students and assist them to live the intellectual life to the fullest possible degree.

One concrete proposal in this connection is seriously recommended to the consideration of the President and Board of Trustees. The German department strongly urges the establishment of a German House on the campus, where a group of advanced undergraduate and graduate students, specializing in this field, might live together and pursue in common their interest in the German language and literature. One suggestion is that there should be two houses, one for men and one for women, with a common dining-room. Such a house would at once become the German center for the University. Here German only would be spoken; here German songs would be sung; reproductions of the best in German art displayed. A small but carefully selected library of German books and the best of German reviews and periodicals would be found here. Around the dinner table and in the lounge of an evening one might expect to hear interesting and intellectual conversation relating to the primary interest of the group. The learning process of the classroom would be linked up with the home life of the members of the group. Can we doubt that they would educate each other in such an environment? Is there any question that such an institution properly organized and conducted would stimulate the intellectual life of the entire campus? German houses are to be found in a number of other universities, and their success makes the proposal to establish one here a practical one and involved with very little risk.

Other groups of students might, as circumstances warrant, be encouraged to establish houses of the same general character, where the bond that unites them is one of common intellectual interest, and not the factitious and adventitious considerations which serve as the basis of the ordinary fraternity and



sorority. The problem of the housing of our students is one which we shall sooner or later have to face. We should approach it as primarily an educational problem. It is from this point of view that the development of the great system of new dormitories at Harvard has proceeded. We probably shall not wish to do exactly what Harvard has done. Our situation and circumstances are quite different. But we cannot ignore the importance of the home life of our students as a decisive environmental factor in their education.

Practically all that has been said regarding environmental conditions relates to the University as a whole, and not merely to the College of Arts and Sciences. It is a general university problem. But its significance in connection with the achievement of the aims and objectives of the Arts College is so great that we have felt compelled to discuss it here at some length.

#### THE COLLEGE ADMINISTRATION

The work of the office of the College has expanded considerably during the year. This expansion has not been in the nature of routine administration but of advice and counsel to students. During the summer of 1929, our previously cramped quarters were enlarged by the acquisition of the space occupied by the offices of the Department of Philosophy and that of a large classroom. With adequate office space we have not only been much more comfortable, but have been able to do a much more effective kind of personnel work. Miss Eva Smith, who was added to our staff in July, has assisted Junior Dean Troutman in his work with Freshmen and Sophomores. The Secretary of the College, Mr. Howard Hamilton, and Miss Roberta Abernethy have devoted themselves to advising upperclassmen. Thus four members of our staff have been largely occupied with counselling students with regard to the infinite number of questions which arise in connection with their work. We believe that this advisory work is of the highest importance. It is as truly educational in its purpose and effect as that of the instructor in the classroom. Each student's problems are individual to him, and the expert counsel and guidance which we believe is now afforded must be of real value to the students who in increasing numbers find it worth their while to consult with us. For the nine months period from October 1, 1929, to June 30, 1930, the Junior Dean, the Secretary, Miss Smith, and Miss Abernethy had over seven thousand interviews with students, ranging from five minutes to an hour. This does not include the information, answers to inquiries, given by members of the clerical staff, nor the considerable number of interviews which the Dean had with students.

The necessity of specialized attention to certain groups of students has become evident. Junior Dean Troutman has been particularly impressed with the importance of the advisory work for Sophomores. The first two years work in the College is largely preëmpted by group requirements. In the Sophomore year, however, the student is faced with the crucial decision as to whether he shall enter a professional school or complete the requirements for a bachelor's degree in the College of Arts and Sciences. If he continues in the Arts College, he must decide upon a major field of work. These decisions frequently mark turning points in students' lives. The entire trend of their future, the question of their life-career, is often bound up with the decisions which they make at this time. Mr. Troutman feels that he would like to devote himself largely to the guidance of Sophomore students. He has, therefore, resigned the Junior Deanship, effective September 1. Mr. Huntley Dupré will



join our staff in the Autumn as Junior Dean, and Mr. Troutman will pursue his chosen field of work with the title of Student Counsellor.

Mr. Dupré comes to us with a rich and wide experience which admirably fits him for the duties and responsibilities of the Junior Deanship. A graduate of Ohio State in 1914, and during the past year an Assistant in the Department of History here, he has a thorough acquaintance with the University. For several years he was engaged in Y.M.C.A. work and as director of the Student House at the University of Prague in Czecho-Slovakia. From 1924 to 1929 he was Assistant Professor of History at Miami University. Junior Dean Dupré will add greatly to the strength of our staff. We trust that he will be able to give much thought to the problem of improving teaching in the College, to that of the more effective integration of the Freshmen into the life of the University, and to the work of the Junior Council.

*The Placement Service.*—In our last report we mentioned a placement service as something which had been practically forced upon us. The imperative need of an adequate agency to assist our graduates in securing satisfactory positions is even more evident today. We have been able to develop this work very little, though we have formed additional connections with employing corporations, and have been giving such study to the problem as our limited available time permits. What little we have been able to do appears to be very much appreciated by our students. The numerous inquiries which come to us regarding opportunities for employment indicate a large field of activity only waiting to be developed. The question of a placement service for the University, whether centralized in one office or operated through the several college offices, is one which is earnestly recommended to the serious consideration of the President and Board of Trustees.

*Statistical Studies.*—The need for a number of statistical studies in connection with the work of this office is becoming very apparent. In order that we may justly appraise the work that we are doing and clearly perceive the needs for expansion of our efforts into new fields, it is necessary that we have a clear understanding of all the pertinent facts. We have been able to do something in this field but not nearly so much as we should like. For several past quarters we have been collecting information through a questionnaire, regarding a number of matters, from our graduating seniors. This information is confidential, and our seniors have responded very well to our request. The data relates to what the student expects to do after graduation; whether his plans for life have been changed as a result of his college course, and if so, why; what the student feels has been the essential benefit derived from college; what detriment; what improvements in connection with the College or University he would suggest; what extra-curricular activities he has engaged in; what honors he has achieved, etc. We are desirous of making a study of what our graduates for a period of years are now doing. We should like to investigate statistically the facts regarding probation, dismissal, and reinstatement; what proportion of students dismissed and reinstated eventually graduate or otherwise justify their reinstatement; and, if possible, what types of such students thus redeem their poor records. We should like to study possible correlations between high-school records, intelligence ratings, and other pre-college data and success in college. We should like to make a comparative study of students' records in their pre-professional work and their records in the professional schools. A study of the records of students who have transferred from another college, whether in the University or elsewhere, to the Arts Col-



lege might afford valuable information. And particularly, we should like to make a careful study of the records of students with high point ratios; correlations with intelligence ratings and with previous preparation; how they have selected their courses of study; what are their future plans; what extra-curricular activities they engage in; in what proportion they are members of fraternities and sororities, etc. As time and opportunity afford we propose to pursue some of these studies.

*Committees of the College.*—Four standing committees perform important functions in connection with the administration of the College. The Executive Committee meets every fortnight at luncheon and discusses questions of policy and problems of major importance. It has been largely relieved of routine administrative duties. The discussions this year have been of interest and value and have greatly aided the administrative officers of the College. The Curriculum Committee has two important functions. *First*, it reviews all proposed changes in the offerings of departments and reports to the Faculty for action. It has done valuable work in unifying and standardizing the courses offered by the different departments. *Second*, it is engaged upon an extensive study of the requirements of the College in connection with the anticipated creation of a junior and a senior division in the College. Its report will probably be presented to the Faculty at an early meeting in the Autumn Quarter, and it is hoped that the changes proposed may be announced in the 1931-32 Bulletin, and be made effective for the class entering in 1932. The Petitions Committee, which is a sub-committee of the Executive Committee, passes on petitions from students. During the year this committee considered 476 petitions, and was in session a total of forty-eight hours. The Committee on Honors investigates the records of students doing a high quality of work, and recommends to the Faculty the award of convocation honors.

#### NEW BUILDINGS

At the opening of the Autumn Quarter the departments of English, Classical Languages, German and Romance Languages, and the division of Phonetics occupied the new language building which had been completed during the summer. Very appropriately the Board of Trustees gave the name Derby Hall to this building in memory of Professor Samuel Carroll Derby, for many years Professor of Latin. The greatly improved facilities which this building affords adds much to the effectiveness of instruction and research in these departments. Additional equipment for the building is, however, needed, and provision for the utilization of the large interior court is urged.

The new Pharmacy and Bacteriology building will be completed during the course of the summer of 1930, and the Department of Bacteriology will enjoy, for the first time, thoroughly adequate quarters.

#### DEPARTMENT OF ASTRONOMY

The comparatively light enrollment in this department, which was referred to in last year's report, continues to be a matter of concern to the department and to the College. It is hoped that in connection with a revision of the curriculum of the College this situation may be remedied. The research work of the department, particularly in the observation of occultation of stars by the moon, has proceeded satisfactorily and will be continued during the



coming year. The department is in real need of considerable additional equipment.

#### DEPARTMENT OF BACTERIOLOGY

The new Pharmacy and Bacteriology Building will be completed so as to be ready for occupancy by the opening of the Autumn Quarter, 1930. For the first time the Department of Bacteriology will enjoy thoroughly adequate quarters. This building has been planned with great care and embodies many new and interesting devices. It is probably not excelled by any other bacteriological laboratory in the country.

#### DEPARTMENT OF CLASSICAL LANGUAGES AND LITERATURE

Assistant Professor Lester K. Born, who came to us at the beginning of the Summer Quarter, 1929, has accepted a flattering offer from Western Reserve University. Dr. John B. Titchner of Harvard University, will be appointed as assistant professor to this vacancy. Dr. Titchner comes to us with a splendid training and several years teaching experience. During the Winter Quarter Professor M. B. Ogle was acting professor at Leland Stanford University. Professor George M. Bolling has been on the staff of the Linguistic Institute in the summers of 1929 and 1930. He continues as the efficient editor of *Language*. Professor Ogle is the general editor of the Century Series of College Texts. Professor W. S. Eldon is this year president of the Ohio Classical Conference. The department is serving the Latin teachers of the state by the loan of pictures and lantern slides and the distribution of pamphlets containing material of interest in their work.

#### DEPARTMENT OF CHEMISTRY

This department, which is one of the largest in the University, is organized in several divisions as follows: Inorganic Chemistry under the direction of Professor W. E. Henderson; Organic Chemistry under the direction of Professor W. L. Evans; Quantitative Analysis under the direction of Professor C. W. Foulk; Physical Chemistry under the direction of Professor Edward Mack; Electro and Colloid Chemistry under the direction of Associate Professor W. G. France. During the year all the Sophomore work has been under the direction of Assistant Professor Harvey Moyer. Additions to the staff this year include Assistant Professor Moyer, Assistant Professor Melville Wolfram, and Assistant Professor H. L. Johnston. These men are all highly trained and thoroughly competent and have greatly added to the strength of the department. Next autumn Dr. G. B. Bachman will be added to the staff as instructor. During the Summer Quarter, 1930, Dr. T. M. Lowry of Cambridge University, and Dr. R. A. Morton of the University of Liverpool are on the staff of the department as visiting professors. All the work of the department is now, for the first time in twenty-five years, housed in one building. The new Chemical Laboratory is admirably adapted to the needs of the department, though to bring it to the state of completion anticipated in the original plan will require a considerable additional appropriation. The provision of an instrument shop has been of great advantage to the department. During the year Mr. Thomas Midgley, Jr., and his two associates, Drs. Albert Henne and Alvin Shepard, have been associated with the department as guest

research investigators. Their presence has been a stimulus and inspiration. A large amount of research has been carried on by members of the department, and the results published in numerous papers. Dean William McPherson is this year president of the American Chemical Society, a distinction in which the department and the College take great pride.

#### DEPARTMENT OF ENGLISH

The proposal of a proficiency test in English to be given to all entering Freshmen, successful passage of which would exempt from the requirement in English composition, has been seriously considered during the year by the department and the College, and it is quite probable that this will be adopted during the course of the coming year and become effective in 1932. Professor Clarence E. Andrews has asked that his teaching service in the University be confined to two quarters, and this has been granted. He plans to devote half of each year in the future to writing. Constantly increasing interest in the work in Public Speaking and Dramatics presents the problem of the most appropriate organization of this work.

#### DEPARTMENT OF GEOLOGY

The teaching staff of the Department of Geology has been enlarged this year by the addition of an instructor, Dr. Willard Berry, who has already won a strong place for himself in the esteem of his colleagues. Dr. H. D. Squires is leaving the University to accept a position in the Oregon Agricultural College. It is expected that this vacancy will be filled by the opening of the Autumn Quarter. For several years no courses in Geology have been offered in the Summer Quarter. It is strongly desired both by the department and the College that at least the elementary courses and an advanced field course be given in the summer. The necessary equipment for the latter is requested by the department. At present our graduate students are compelled to get this training in field work at other institutions. The department is carrying on a substantial program of research. At least six members of the staff are, during the summer of 1930, engaged in field work in connection with either federal or state geological surveys.

#### DEPARTMENT OF GERMAN

Assistant Professor May Thomas, who has been connected with the Department of German of the Ohio State University for twenty-five years, has been made Assistant Professor Emeritus. Professor August C. Mahr of Stanford University has been visiting professor during the Spring Quarter, and has accepted a permanent position as professor in the department for next year. He will ably fill the vacancy occasioned by the resignation of Professor G. Böhme in 1928, and hitherto unfilled. Professor B. A. Eisenlohr has been on leave since January working with the *Volkslied Archiv* in Freiburg, Baden.

#### DEPARTMENT OF HISTORY

The Department of History has this year suffered two great losses in the resignations of Professor Arthur C. Cole, who has accepted a very important graduate professorship at Western Reserve University, and of Associate



Professor J. A. O. Larsen, who goes to the University of Chicago to a very interesting and attractive position in his chosen field of Greek and Roman history. These resignations came so late in the year that it has been impossible to make permanent provision for them. Professor Cole's courses will be given by other members of the department, and Professor Larsen's courses will be starred for the year 1930-1931. It is gratifying to report the addition to the staff of the department for next year of Professor Walter L. Dorn, who is a brilliant scholar and teacher and who made many friends during his sojourn with us during the Summer Session of 1929. His special field in the Renaissance and Reformation. During the Summer Session of 1930, Professors Clarence E. Carter of Miami University and Albert Hyma of the University of Michigan are on the staff of the department. The graduate work in History has been steadily expanding, especially in the Summer Session. The burden which this throws upon the senior members of the staff is becoming very heavy, so that some additional provision for the increasing number of graduate students will soon become imperative.

#### DEPARTMENT OF MATHEMATICS

On the nineteenth of March, 1930, Professor George W. McCoard died at the age of eighty-one, bringing to a conclusion forty-eight years of continuous service to the University. Professor McCoard was the oldest member of the Ohio State Faculty, both in age and in number of years of service. Professor Charles L. Arnold, who had been connected with the department for forty years, retired from active service at the end of the year and was made Professor Emeritus. Miss Clarice Hobensach, who had been an instructor for several years, resigned early in the Autumn Quarter. The department will add three new members to its staff next year. Professor Tibor Rado of the University of Szeged, Hungary, comes to us with a fine record of scientific publications. During the year he has been lecturing at Harvard and at Rice Institute. He will greatly strengthen the graduate work of the department. Frederic R. Bamforth will join the department as assistant professor. He comes to us from Cornell University, after having held a national research fellowship during the year 1928-29. Assistant Professor Lincoln LaPaz, the third new member, has also held a national research fellowship and comes to us from the University of Chicago. The year has been marked by a considerable amount of published research by various members of the staff, and by an increasing number of graduate students.

#### DEPARTMENT OF PHILOSOPHY

Professor Albert E. Avey was on leave of absence lecturing during the year at the University of Pittsburgh. His work was in part carried by other members of the staff. During the Spring Quarter, Dean Shailer Mathews of the University of Chicago conducted a course in the History of Religion and gave a number of public lectures which were well attended. Assistant Professor W. A. Shimer has resigned to accept the assistant secretaryship of the national organization of Phi Beta Kappa. This resignation came too late in the year to make a permanent appointment, but Professor Shimer's classes will be satisfactorily provided for temporarily. Professor Albert H. Chandler will be on leave of absence during the coming year. It is expected that a visit-

ing professor will be appointed for one term to give courses in aesthetics, and that otherwise Professor Chandler's courses will be conducted by other members of the department. During the year, under the stimulating leadership of Professor Shimer, the Philosophy Club has been very active. A series of discussions led by men from other departments on problems of current importance proved very successful and aroused great interest in the student body.

#### DEPARTMENT OF PHONETICS

This division, now established in its new laboratories in Derby Hall, has expanded its services to the language departments, and is providing a very valuable service in the speech clinic for students with speech defects. In addition to Professor G. Oscar Russell, Mr. Ralph H. Waltz has been on the staff of the department this year as instructor. Next year Miss Marie K. Mason will be added as a part-time lecturer. Professor Russell has during the year carried on research in the physiology of the speech organs which promises to be of great importance. A considerable amount of new equipment will be added next year, which will greatly facilitate and improve the work both in the practical laboratory, which is maintained for the use of students of foreign languages, and in the experimental laboratory where we may expect still further important developments.

#### DEPARTMENT OF PHYSICS

Recent advances in theoretical physics have made it imperative that this field be developed at Ohio State University. During the year we have been fortunate in securing as visiting professors in theoretical physics Professor Alfred Landé of the University of Tübingen, who taught during the Autumn and Winter quarters, and Dr. L. H. Thomas of Cambridge University. Dr. Thomas will become a permanent member of the department as Associate Professor, and Professor Landé will return next year on a temporary appointment for the Autumn and Winter quarters. During the Spring Quarter Dr. L. W. Nordheim of the University of Goettingen continued the lectures which Professor Landé had been giving in the two preceding quarters. Dr. C. E. Hesthal has been added to the staff during the past year as instructor, and Drs. H. H. Nielsen and W. H. Bennett have been appointed instructors for next year. With these men there will be a group of seven instructors in the department, all of whom have distinguished themselves as scholars. During the summer of 1930, Professors H. A. Wilson of Rice Institute and William W. Watson of Yale University are on the staff of the department. The increasing registration in advanced undergraduate and graduate work in the department is very gratifying. With the removal of the Department of English from Mendenhall Laboratory much needed space has become available for expansion of the Physics department. Additional apparatus permits important research to be conducted in several new lines, and it has also been possible to improve greatly the instruction in the elementary area. The establishment of the Cole library, as a memorial to Professor A. D. Cole, is a significant event in the history of the department. Under the direction of C. E. Skinner of the Westinghouse Manufacturing Co. and Professor F. C. Blake, a committee is raising funds to properly endow this library.



## DEPARTMENT OF POLITICAL SCIENCE

Mr. Harry Schuyler Foster, Jr., was added to the staff of the department this year as instructor. The vacancy in the department caused by the resignation of Professor F. W. Coker who accepted a call to Yale was not filled during the year. His work in political theory is being carried by Professor George H. Sabine and Dean W. J. Shepard. Next year Professor Peter H. Odegard of Williams College will join the department and give courses in political parties and public opinion. During the summer of 1930, Professor F. W. Coker of Yale is again a member of the department. Largely under the stimulus of Professor Harvey Walker, the department library has been greatly augmented—particularly in the fields of state and municipal government. A gift of sixty-two volumes from the Yale Press, made in memory of President and Chief Justice Taft and President Hadley of Yale University, is deeply appreciated. Expanded and improved physical quarters will be provided for the department during the summer. On June 14, the Ohio League of Municipalities was reorganized, and Professor Walker was elected Secretary. It is hoped that this is the beginning of a valuable and helpful connection between the department and the officials of Ohio municipalities.

## DEPARTMENT OF ROMANCE LANGUAGES

The addition of Professor Robert E. Monroe to the staff of the department this year has been of the greatest advantage. He has assumed the supervision of all the elementary work in both French and Spanish, and along with new methods of instruction he has introduced a fine enthusiasm and spirit among both teachers and students. With the coming year several changes in the staff will take place. Messrs. Dwight E. Donan, Louis A. Vigneras, Emile Telle, and Miss Emily Schons have resigned. We are fortunate in securing as an assistant professor, Mr. Don L. Demorest of Miami University, and as instructor, Mr. Girder Fitch of Transylvania College. Madame Fouré returns to us after a year's leave of absence in France. Professor George R. Havens was awarded a Guggenheim fellowship and has been on leave of absence during the Spring and Summer quarters, investigating the Voltaire library in Leningrad. During the summer of 1930, Professor E. M. Grant of Smith College is on the staff of the department. The department, through Professor Gutierrez, has during the year given regular lessons in Spanish over the radio station WEAO twice each week. This experiment has been so successful that it is proposed during the coming year to give radio instruction in both French and Spanish at hours which may be utilized by classes in the high schools.

# COLLEGE OF COMMERCE AND ADMINISTRATION

Dean, W. C. WEIDLER

## STUDENT ENROLLMENTS

The student enrollments in the College continue to grow at a rather steady rate. It is significant that the increase in enrollment is confined almost entirely to the upper-class area. The number of graduate students majoring in the fields of work administered in the College has constantly increased from year to year.

The enrollment (exclusive of the Department of Commerce Extension) by quarters for the past year and also for the year 1928-29 was as follows:

	Summer	Autumn	Winter	Spring
1928-29.....	221	1,827	1,672	1,556
1929-30.....	240	1,982	1,859	1,781

The registrations<sup>1</sup> for the Department of Commerce Extension since the organization of the department were as follows:

Academic year.....	1925-26	1926-27	1927-28	1928-29	1929-30
Reg'istrations.....	397	608	1,228	1,456	1,433

The total number of different students enrolled in Commerce Extension classes in the year 1929-30, eliminating duplications, was 648.

## SURVEY OF THE COLLEGE EDUCATIONAL PROGRAM

During the past year the College Staff has held two luncheon meetings each month for the discussion of various educational problems.

A number of committees have made intensive studies of certain phases of our educational program. A committee, consisting of representatives from the College, the Department of Mathematics, and the Bureau of Educational Research, has made an intensive study of mathematical requirements. This study involved a careful analysis of our commerce courses for the purpose of determining mathematical terminology, problems, student difficulties, and processes. The committee report has been accepted by our Faculty, and the Department of Mathematics is planning a course or courses better adapted to the needs of our students. The Bureau of Educational Research rendered invaluable assistance in this study, for which the College wishes to acknowledge its indebtedness to the Bureau.

Another committee has made a careful study of the educational program offered to Freshmen and Sophomores. As a result of its studies and recommendations, a number of significant changes have been made in the work of the junior area. The foreign-language requirement has been changed, the revised mathematics course has been added to the list of requirements in certain groups, and the course in Social Science has been reorganized in such a way as to minimize duplication of work offered in other courses.

The Faculty has shown an active interest in the English requirements

<sup>1</sup> One registration means an enrollment for one course for a single quarter.



of the College and has authorized the appointment of a committee to make a survey of this situation.

One of the most significant developments of the year is the creation of a College Committee on Instruction. It is our hope that this committee may be instrumental in minimizing duplications of effort and that it may bring close study to bear on changes in courses and curricula as proposed by the teaching departments.

It is recognized that the above examples are the initial steps in a general inventory of our present courses and curricula. In our judgment all courses and curricula should be subjected to a careful appraisalment which should involve a thorough analysis of the necessities of the various fields of business activity in which our graduates are employed. Such a program must necessarily extend over a considerable period of time. Its effectiveness will be greatly increased as the contacts of our faculty with Ohio industry are enlarged. It is our hope that more liberal travel appropriations may make more extensive contacts of this nature possible.

#### THE TEACHING STAFF—ELEMENTARY INSTRUCTION

In the field of elementary instruction, we have continued to make substantial progress. The staff was sufficiently large to maintain reasonable student enrollments in most classes. On the score of the maturity and seriousness of purpose of the staff, I believe that conditions were more satisfactory than at any time in the past ten years.

The program of personalizing student-faculty relations has gone forward under the able guidance of Junior Dean Reeder. There was a considerable increase in the number of interview sections operated, and our plans for next year contemplate a continuation and expansion of this program.

We have continued to make progress in our program designed to change the attitude of the teaching staff towards participation in elementary instruction. This work is being given a new dignity, and its importance is being recognized. The College is definitely committed to the program of strengthening the work of this area.

Prior to the school year of 1929-30, such student papers as were not read by instructors in charge of courses were assigned to readers who were normally selected from the senior class. This arrangement proved quite unsatisfactory, and a program was inaugurated involving replacement of senior readers by graduate assistants. This has proven to be a most successful experiment, and it is hoped that we may be able to replace all our readers with mature graduate assistants in the near future. Not only has the creation of these graduate assistantships given us a better quality of paper-reading service, but it has also made possible the assignment to students of more written work, map work, and project work. Incidentally, these assistantships have proven most useful in attracting promising graduate students to this institution.

#### THE JUNIOR DEAN

Two years' experience with the work of the Junior Dean has strengthened our conviction of the great possibilities of this office. As a member of such committees as the College Executive Committee, the Mathematics Committee, and the Committee on the Educational Program for the Junior Area, the

Junior Dean has made most important contributions. On him has fallen much of the research work incident to the work of these committees.

Other major responsibilities of the Junior Dean relate to the promotion and organization of interview sections and statistical studies relating to probation, dismissals, and the effects of certain rules and requirements upon student accomplishments. Other activities involve the interviewing of large numbers of students in the effort to improve the quality of their work. Exclusive attention has not been given to the defective and incompetent, but a serious effort has been made to motivate students who possess high potentialities.

#### THE TEACHING STAFF—ADVANCED INSTRUCTION

A number of resignations have occurred during the year. In addition to the usual turnover of junior staff members serving as assistants, several individuals engaged in advanced teaching have resigned. Assistant Professor R. B. Alsbaugh of the Department of Business Organization has resigned to accept a similar post in the University of Chicago. Mr. Marvin L. Fair of the same department has accepted a position in Temple University. Messrs. Spengler and Prosser of the Department of Economics have also resigned, the former to accept a position at the University of Arizona and the latter to teach in the University of Detroit.

Certain additions to staff have been made, with the result that we have probably increased the general level of instructional quality. Assistant Professor Guy-Harold Smith was added to the staff of the Geography Department. The Department of Business Organization has induced Mr. Ralph C. Davis to return as Associate Professor of Industrial Management. Professor Davis resigned his position in this department three years ago to accept a position on the teaching staff of the General Motors Institute of Technology. Mr. Kenneth Dameron of Rice Institute will join the business-organization staff as Assistant Professor of Marketing and Advertising. This addition to the staff should give increased effectiveness to the newly created curriculum in newspaper management.

Prior to this year, the School of Journalism concentrated upon the problems of training for the editorial side of newspaper work. The newspaper interests of Ohio have urged the School to offer systematic preparation for the business management of papers. The result has been the creation of a curriculum in Newspaper Management which has met with a most cordial reception by the State's publishing interests.

Professor Stillman has been added to the staff of the Sociology Department to inaugurate a special training program for social service executives. The response to this program has been most promising.

Mr. Arthur Utt, an executive of the Miller Knopf Advertising Agency, has been employed to assist in the conduct of certain work in advertising. This program, instituted at the beginning of this past Spring Quarter, has been quite successful. Mr. Utt's employment has made possible a considerable increase in the practical project work required of advertising students. It is our judgment that collegiate schools of commerce will never realize their possibilities until the students are stimulated through larger use of the project method.

The College has made further progress in promoting field work for advanced undergraduate students. It is our thought that the practice of placing



students in selected business or social agency positions for a quarter between their junior and senior years adds materially to the effectiveness of their training. Such experiences assist the student in his choice of a vocation and supply a valuable background for the course work of the senior year. Field work has also been incorporated as an integral part of the program of graduate training for social service instituted under the general direction of Professor Stillman.

The 1930 Summer Quarter teaching staff has been greatly strengthened by the addition of three distinguished visitors. Professor Max Handman, of the University of Texas, has been added to the staff of the Department of Economics. Professor Frank E. Williams, of the Wharton School of Commerce and Finance of the University of Pennsylvania, will spend the first term of the quarter in the Department of Geography. Professor Robert H. Lowie, of the University of California, is offering a program of work in Anthropology, a field which is much in need of development in the Ohio State University.

It is our hope that the practice of inviting outstanding visitors may not be confined to the Summer Quarter but may be extended to other quarters of the year. These visitors are not only stimulating to the student body but to the faculty as well. They bring new points of view and are an excellent preventive of the development of a narrow provincialism on the part of our faculty.

#### SALARIES

The salary situation in the College is unsatisfactory. Professorial salaries in particular are entirely too low. That this is true is evidenced by our experience in attempting to attract men from other institutions. Repeatedly in the past few years we have offered young men salaries comparable to those received by our most mature and most effective professors only to have them refuse our offers. One cannot but be embarrassed by such a circumstance. We are fortunate in having on our staff many men with national reputations. It seems unfair to them to offer comparative youngsters as high or even higher salaries and then fail to attract them.

A diligent effort has been made to build not an average but a distinguished staff. In this effort we have been reasonably successful. In fact, we would not be willing to exchange staffs *in toto* with any undergraduate commerce college in America.

If we wish to retain our abler men, if we do not wish to trade on their loyalty and attachment to the institution and the locality, if we wish to maintain our morale, and if we wish to add outstanding teachers to our staff, we must increase our salary level.

#### MISCELLANEOUS SERVICES OF THE COLLEGE TO THE STATE AND THE NATION

In addition to its services on the campus, the College has rendered certain services to the State at large. The Department of Commerce Extension has offered regular university courses to mature students in many cities in the State. In addition to this class work, this department has promoted, or assisted in the promotion of, a large number of conferences of business and social interests. For example, it cooperated with the Department of Accounting, the Ohio Society of Certified Public Accountants, and the Columbus

Chapter of the National Association of Cost Accountants in promoting the annual accounting conference held on the campus on May 23 and 24 of this year. The department also cooperated with the School of Journalism in promoting the All-Ohio Newspaper Conference and the annual convention of the Buckeye Press Association.

In addition, the School of Journalism fostered certain other meetings such as those of the Blue Pencil Club, an organization of news desk men of the State, and of the Journalism Association of Ohio Schools.

The Department of Geography was host to the National Council of Geography Teachers and the Association of American Geographers. These meetings were held on the campus during the Christmas holiday season.

The College joined with the Columbus Chamber of Commerce in bringing the convention of the Taylor Society to Columbus.

Through the generous cooperation of the Graduate Council, the College was able to invite Dr. Vilhjalmur Stefansson, the distinguished Arctic explorer, to the campus for a series of lectures and conferences on the general subject of Arctic Geography and Arctic Ethnology. This series of lectures proved to be one of the most popular ever given on this campus and excited extraordinary interest on the part of both the University and the outside public. In addition to Dr. Stefansson, the College has had a number of distinguished visitors, including Dr. Myrdal, a member of the Economic staff in the University of Stockholm, Sweden.

The Bureau of Business Research has continued to render valuable services through its research and publication of monographs on a variety of statistical, merchandising, and manufacturing subjects. It has also taken a vital part in the research programs of our graduate students. Its activities have been loyally supported by the business constituency, which has continued its cordial cooperation with the research program.

The members of the teaching and research staffs have given liberally of their time and energy in responding to numerous requests to address business, educational, and other groups.

A number of our staff have been honored by election to important posts. Dr. Matthew Brown Hammond, of the Department of Economics, was elected to the presidency of the American Economic Association. This honor is given only in recognition of high service and high attainments. Dr. Hammond's selection for this important post brings high honor to the College and the University.

Dr. H. H. Maynard, of the Department of Business Organization, was selected as the president of the National Association of Teachers of Marketing and Advertising.

Professor Spurgeon Bell, the Director of the Bureau of Business Research, has served as chairman of the Subcommittee on Research of the general state-wide committee on taxation problems.

Mr. W. D. Wall, of the Department of Accounting, has served as a director of the American Society of Certified Public Accountants. Other members of this department have also been honored by selection for important posts.

Professor T. N. Beckman, of the Department of Business Organization, has been employed by the Federal Bureau of the Census as a special consultant in charge of the census of wholesaling.

Representatives of other departments have been honored by selection for important posts and are rendering valuable services in many areas.



## BUILDING AND EQUIPMENT PROBLEMS

One of the outstanding College needs is the completion of the Commerce Building. Since the College occupied its new building in the autumn of 1924, there has been an increase in the student enrollment from 1,639 to 1,938. The result has been a very considerable increase in the number of our classes meeting outside the Commerce Building. In fact, this past Autumn Quarter 60 of our classes met in outside buildings. This circumstance would not be so undesirable were it not for the fact that essential teaching materials such as maps, charts, etc. must frequently be dispensed with.

When we first occupied the building, classroom and particularly office space was inadequate. Since that time the situation has constantly grown worse. It has been necessary to use certain classrooms for office space. This arrangement, while reducing our classroom facilities very materially, still leaves us inadequately supplied with offices. The following list will show the classrooms taken for office purposes since we occupied the building:

CLASSROOMS GIVEN UP TO OFFICE SPACE

	First Floor					Second Floor	
Room .....	101 <sup>a</sup>	102	108	109	117	205 <sup>b</sup>	206 <sup>b</sup>
Capacity .....	90	40	45	45	90	40	120

<sup>a</sup> Extension.

<sup>b</sup> Bureau of Business Research.

## OFFICE SITUATION

In spite of the assignment of classrooms for office purposes, our office situation is far from desirable, particularly in the light of our program to stimulate faculty-student contacts. Interview section instructors occupy general offices with four and five instructors to the office. Junior Dean Reeder says that such instructors frequently deplore the unfortunate setting for their student conferences.

It would seem to me highly desirable that we create adequate office facilities. Teachers should be encouraged to spend more time on the campus where they will be accessible to students and to their colleagues. Satisfactory office facilities will do much to promote this desirable development.

## LABORATORY FACILITIES

The increased enrollment in Elementary Accounting is creating an embarrassing laboratory problem. Additional laboratory facilities are necessary if we are to offer satisfactory laboratory work in this subject. In fact, we are now caring for practically the maximum number which can be offered any sort of accommodation. Moreover, the necessary crowded condition militates against the best work.

Economics 522, Principles of Statistics, must be closed every quarter on account of limited laboratory space and the necessity of using this room for other classes. We need a larger laboratory for this work and one which will not be used for other class work if we are to meet the needs of this instruction.

You will recall the fact that in another section of this report I referred to the desirability of putting more of our work on a project basis. This Spring Quarter we instituted a laboratory for project work in connection with our

course in Advertising Practice. Next year we plan to add a laboratory period in Retail Advertising. Future plans involve the institution of laboratory periods in other course work such as Marketing Problems, Banking, etc. Additional laboratory space will be necessary if this program is given effect. The advertising laboratory, for example, should be equipped with displays of type, mats, advertising, etc.

#### COLLEGE LIBRARY FACILITIES

I am enclosing a report from Mrs. Watson<sup>2</sup> the College Librarian, showing the extent of student use of our library facilities. We are now caring for the maximum number which our reading room will accommodate. Additional reading-room space is urgently needed as is also a check room for the use of library patrons.

#### OTHER BUILDING NEEDS

Early in our occupancy of the building a room was assigned to the use of various student organizations. Shortage of space made it necessary to assign this room to other uses. It would be highly desirable if we might have enough space to permit us to assign space to the Ohio Commerce staff and various professional clubs and societies such as the Management Club.

#### LIBRARY ATTENDANCE

	1925-26	1926-27	1927-28	1928-29	1929-30
July .....	.....	1,214	1,656	2,381	2,721
August .....	.....	1,207	1,923	2,517	2,090
September .....	.....	951	1,547	.....	.....
October .....	7,642	10,225	12,992	10,705	13,204
November .....	6,003	10,785	11,833	12,326	12,606
December .....	5,737	8,668	8,312	9,639	9,423
January .....	7,759	10,218	12,833	14,112	13,970
February .....	8,718	10,999	13,401	14,320	.....
March .....	6,626	7,722	9,537	9,387	.....
April .....	9,418	11,120	12,648	14,336	.....
May .....	7,706	10,802	12,140	12,792	.....
June .....	2,905	3,981	3,331	2,976	.....
Totals .....	62,514	87,892	102,153	105,491	.....

The foregoing material naturally bears upon our need for the completion of the Commerce Building. It is our sincere hope that the building may be completed as soon as possible. It was virtually outgrown when we moved in. Our situation has grown progressively worse. Many very necessary lines of development will be handicapped or estopped by substantial delay in the completion program.

#### EQUIPMENT PROBLEMS

The College equipment appropriations have been entirely inadequate to supply the minimum equipment for the conduct of our work. I know that it is difficult to realize that our fields of work call for equipment if they are to be well done just as truly as do the physical sciences. The Department of Geography has asked repeatedly for equipment which the College administration

<sup>2</sup> See table, Library Attendance.



has been forced to deny in spite of our conviction of the reasonable nature of these requests.

In the future, the proposed introduction of laboratories into courses not now using such facilities will increase our equipment necessities.

For the current calendar year, we have an appropriation of \$5,000 for office supplies, stationery, postage, equipment, repairs to equipment, publication of the Ohio Newspaper (which costs approximately \$1,000), and travel. This appropriation will probably limit our equipment purchases to \$200 or possibly \$400. This means that the current year will be the leanest year in a series of lean years in so far as new equipment is concerned.

It is earnestly urged that more adequate provision be made for the college equipment needs.

The attached reports of the chairman of the departments located administratively in the College set forth the major achievements of the year, programs in progress, and record the outstanding departmental needs.

### BUREAU OF BUSINESS RESEARCH

During the year 1929-30 the Bureau of Business Research has continued its cooperative activities with the graduate students and the instructional staff of the College of Commerce and Administration, and has made new contacts among business and professional organizations in the State and United States.

As indicated elsewhere, in the past year the Bureau has been able to make gratifying progress in contributing to the development of graduate work in the College of Commerce and Administration, in assisting in and fostering research throughout the College, and in providing materials for classroom instruction. Progress in this direction is definitely pleasing to the Bureau staff and is in line with the expressed desire of the administration of the College.

In the business field, the contacts which the Bureau made during the past several years were maintained at their former level, and in addition a considerable number of new contacts were made. Bureau staff members hold positions of responsibility on important committees in such organizations as the National Retail Dry Goods Association, the National Retail Grocers' Association, the Ohio Council of Retail Merchants and retail organizations affiliated with it, the Ohio Wholesale Grocers' Association, Tri-State Credit Men's Association, Ohio Valley Retail Furniture Association, the Taylor Society, and the Ohio Valley Shippers' Advisory Board. The latter organization has requested that the Bureau make a statement of business conditions in Ohio at the regular quarterly meetings of the organization, dating from February, 1930. Contacts with the Department of Commerce at Washington, D. C., have expanded during the past year and have become much more intimate than previously. A number of large life insurance companies throughout the country, notably the Metropolitan, are working in close cooperation with our Bureau. The U. S. Department of Labor derives a considerable proportion of its statistics on labor and employment conditions from the Bureau of Business Research, and a number of local and national trade publications regularly receive and use material which is reported to them by the Bureau.

The activities of the Bureau have expanded in another direction. The Bureau is represented on the Governor's Taxation Committee and a member of its staff is now serving as Chairman of the Subcommittee on Research, which is charged with the responsibility of making studies upon which the general

committee will base its requirements of a reorganization of the Ohio system of taxation. The Bureau is also represented on the directorate of the Ohio Chamber of Commerce, the Ohioana Library Committee, and the Committee on Business Research of the National Social Science Research Council. There is in progress at the present time a research conducted by the Bureau of Business Research in the tire and tube industry which will be the most exhaustive study of that industry yet attempted. It has received the support of all of the large tire and tube companies.

It is not proposed to enumerate all of the contacts of the Bureau nor to present a list of the most important contacts. The list which is given is a representative one. It seems to be safe to say, however, that the Bureau is making fair progress in contributing to the teaching materials of the College, in promoting research in the University through offering research opportunities to faculty members and attractive possibilities for graduate research to graduate students, and in taking an active and influential part in the development of the economic and business life of the State and Nation.

The first section of this report of the Bureau of Business Research during 1929 and 1930 consists of a brief treatment of the nature of the activities of the organization during this period. In the following section the specific program in each of the functional fields is briefly considered. In conclusion, an account is given of the staff changes which occurred during the year, with suggestions concerning the most pressing needs of the Bureau.

#### NATURE OF BUREAU CONTACTS IN OHIO

1. *Business Contacts.*—The Bureau has four types of contacts with business organizations in Ohio: first, formal publications, such as the *Bulletin of Business Research*; second, special studies, such as *Industrial and Commercial Ohio*; third, special releases, such as the employment releases; and fourth, personal contacts of staff members with members of firms and organizations throughout the State.

TABLE I  
DISTRIBUTION OF CURRENT BUREAU PUBLICATIONS, BY COOPERATORS  
AND NON-COOPERATORS

Bulletin	Cooperators	Non-Cooperators	Total Distribution
Bulletin of Business Research .....	1,100	1,779	2,879
Bulletin to Ohio Retail Dry Goods Trade.....	90	238	328
Bulletin to Wholesale Grocery Trade.....	57	85	142
Release on Automobile Registrations in Ohio.....	58	672	730
Employment Releases:			
City Release .....	1,013*	175	1,188
Chemicals .....	22	60	82
Food .....	60	62	122
Lumber .....	33	62	95
Metal Products .....	181	64	245
Machinery .....	116	66	182
Paper and Printing .....	48	61	109
Rubber Products .....	27	62	89
Textiles .....	46	59	105
Vehicles .....	71	62	133
Stone, Clay and Glass .....	67	61	128
Construction .....	243	64	307
Non-Manufacturing .....	59	59	118

\* This figure represents the total number of firms cooperating in the employment releases.



The analysis given in the accompanying table indicates the relative importance of such publications as the *Bulletin of Business Research* and the special releases.

Although most of the special bulletins of the Bureau are technical in character and therefore appeal to a narrow range of interests, all of them have met a satisfactory response. The supply of several of the special bulletins has been exhausted, and in some cases a second printing has been made. This response has been encouraging to the Bureau, especially since it has occurred without using any sales pressure, such as is used in publishing houses.

In the history of the Bureau there have never been as many requests for addresses by staff members as during the past year. A gratifying feature of these requests is that almost invariably staff members are requested to give talks based upon Bureau researches.

2. *Contributions of the Bureau to the Work of the Instructional Staff.*—In addition to its connections with business firms, an important part of the work of the Bureau has been that of cooperating with the program of the instructional staff of the College of Commerce and Administration. Early in the year 1929-30, the Bureau made available without charge to classes which could make direct use of them certain of its publications. In addition, a current running story of business activities has been presented during the year on the Bureau bulletin board. A number of classes have been making use of the bulletin board for current reference purposes.

One of the most encouraging developments of the past year has been the increasing interest which is being shown by members of the instructional staff in developing research projects through the Bureau. In 1929-30, five members of the instructional staff have completed or are carrying forward studies in which they are especially interested. In addition, six instructors are carrying forward researches in the Bureau with the purpose of satisfying thesis requirements for A.M. or Ph.D. degrees; that is, in the past year eleven instructors in the College of Commerce and Administration have made use of the facilities of the Bureau in conducting some kind of research. In addition, seven graduate students who are not instructors have carried forward researches which are to be used as thesis material to satisfy the requirements for degrees, and four graduate students have conducted researches in the Bureau without the immediate purpose of using the material for a thesis. Including the instructors, a total of seventeen graduate students have during the past year conducted researches through the Bureau of Business Research. One graduate student, who is the Director of the Bureau of Business Research in the state university of another state, said that he was largely interested in doing his work at the Ohio State University because of the existence of the Bureau of Business Research here. Similar expressions of opinion from other graduate students are available. The Bureau has not at any previous time had so many suggestions for cooperative research from members of the instructional staff as at the present time.

3. *Cooperation with Other Departments of the University.*—A phase of the work of the Bureau which is rapidly assuming significance is that of cooperating with other departments of the University in researches which have important business and economic aspects. At present, cooperative work is going forward with four departments of the University. In cooperation with the Bureau of Educational Research, our Bureau is making a study of atti-

tudes of employers of minors towards the Bing Law, which was passed to regulate part-time employment in Ohio. These findings will form a basis for a proposed revision of the law by the next legislature. A series of studies is being issued by the Bureau in cooperation with the Ohio Poultry Improvement Association, an organization affiliated with the Department of Poultry Husbandry. These studies deal with the hatchery industry, and the Bureau's contributions have been cost and operating studies and a system of uniform accounts. In cooperation with the Engineering Experiment Station, the Bureau is working out a series of studies dealing with the coal industry. The Bureau's work will deal with competition in retailing coal, the cost of selling coal, and operating expenses of retail coal dealers. The Department of Agricultural Economics has cooperated with the Bureau in supplying data on gross cash agricultural income for the *Industrial and Commercial Ohio Yearbook*. Through cooperation of this sort, the available resources of the University may be pooled, and used to the best possible advantage.

#### THE PROGRAM OF THE BUREAU

The following statement represents more fully the activities of the Bureau during the past year with respect to reports issued, studies in process, and studies contemplated in the various fields covered by the Bureau.

*General Economic and Statistical Studies.*—During the past year the *Industrial and Commercial Ohio Yearbook* was prepared and will soon be distributed. This publication covers a somewhat wider field than *Industrial and Commercial Ohio* and is more up-to-date. It has been worked out in terms of suggestions given to the Bureau by business men in numerous fields. A manual of simplified statistical procedure, developed from Bureau experience, has been issued. This is an important contribution to statistical practice.

The progress of the Bureau in this field during the past year and the program for 1930-31 are shown below.

#### EXHIBIT I

##### GENERAL ECONOMIC AND STATISTICAL REPORTS COMPLETED AND IN PROCESS, 1929-30

##### *Reports Completed During 1929-30*

Industrial and Commercial Ohio, Volumes I and II (Volume II completed in January, 1930)

Simplified Procedure in the Statistical Analysis of Time Series—June, 1930

##### *Reports in Manuscript Form*

Commercial Arbitration in Ohio (in hands of American Arbitration Association for publication for the past two years)

Salaries and Cost of Living of University Professors

Industrial and Commercial Yearbook, 1929

Attitude of Employers Toward the Bing Law

##### *Reports in Process*

The Factors Underlying the Volume of Construction

The Forecasting of Department Store Sales in Ohio Cities

The Valuation of Building for Taxation by Ohio County Auditors

The Relocation of Industries in Ohio

Population Trends in the Counties of Ohio

An Estimate of the Revenues Derived from the Personal Income Tax



*Researches Projected*

Local Variation in Wage Rates in the Counties of Ohio  
 The Best Method of Computing the Annual Population of Ohio Cities on the Basis of the Statistics Available in These Cities  
 Various Supplements to the Bulletin (setting forth portions of studies of immediate interest to Bulletin readers)

*Continuous Services*

Bulletin of Business Research  
 Employment Releases  
 Automobile Registration Release

*Marketing Research.*—The campaign for the reduction of returned goods which the National Retail Dry Goods Association inaugurated largely as a result of the Bureau study of this subject, is at present gaining impetus on a national scale. Members of the Bureau staff have been acting in an advisory capacity with the National Retail Dry Goods Association throughout the planning of its study. The Bureau, in cooperation with the Ohio Council of Retail Merchants, is planning a campaign for the reduction of returns in Ohio, beginning in Columbus. This will be the first instance in which the Bureau has attempted to put into actual practice the recommendations made as a result of its investigations, and the results will be watched with interest.

An important research which is planned for this field is that to be carried out in cooperation with the American Federation of Advertisers. This research deals with the use of various types of retail media and an evaluation of the effectiveness of such media. The study of marketing practices in retailing and wholesaling coal is in process in cooperation with the Engineering Experiment Station.

The progress of the Bureau in this field during the past year, and the program for 1930-31, are shown below:

## EXHIBIT II

## MARKETING STUDIES COMPLETED AND IN PROCESS, 1929-30

*Reports in Manuscript Form*

Analysis of the Demand for Apples (in editor's hands)  
 Commercial Arbitration in Ohio—Part I, Legal Aspects; Part II, Economic Aspects (in editor's hands)  
 Special Sales in Department Stores  
 Collective Buying (in editor's hands)  
 Insurance Trade Press Advertising (in printer's hands)  
 Instalment Selling in the Furniture Trade (in galley)  
 Markdowns in Ohio Department Stores (in cooperation with National Dry Goods Association)

*Reports in Process*

Credit Ratios in Ohio Wholesale Grocery Stores  
 Competition in Retailing Coal

*Reports Projected for Consideration as the Program Progresses*

Stock Control in Retail Furniture Stores  
 Section II—Stock Control in the Purchase and Sale of Men's Ready-to-Wear Constructive System of Control and Their Application  
 A Study of Hour Sales in Department Stores in Its Relation to Advertising, Opening and Closing Hours, and Personnel Problems  
 The Trend of Wholesaling  
 The Competitive Situation of the Small Retailers  
 The Organization and Operating Costs of Retail Credit Bureaus

Overhead and Direct Costs of Accounts Receivable  
 The Marketing of Fresh Fish in Ohio  
 The Distribution of Canned Goods in Ohio  
 Forecasting Retail Sales in Ohio Cities—Use of Employment Data

*Continuous Services in Marketing Field*

Monthly Retail Dry Goods Service  
 Monthly Wholesale Grocery Service

*Industrial Management Research.*—The fact that Mr. Wissler is devoting half of his time to teaching works a severe handicap upon research in this division. During the year the study on Employee Magazines has been brought to completion and is at present in the editor's hands. Personnel Management in Manufacturing Industries is also available for editing. Both of these studies should be of interest to manufacturers throughout the State. The previously issued study, *Material Control in Foundries and Machine Shops* has received favorable recognition in Ohio, and in the national trade press.

The progress of the Bureau in this field during the past year, and the program for 1930-31, are shown below:

EXHIBIT III

INDUSTRIAL MANAGEMENT RESEARCHES COMPLETED AND IN  
 PROCESS, 1929-30

*Reports Issued During 1929-30*

Industrial and Commercial Ohio (mentioned under a preceding section, but it also has a distinct bearing on the industrial management field)  
 Material Control in Foundries and Machine Shops

*Reports in Manuscript Form*

Employee Magazines (in editor's hands)  
 Personnel Administration in Manufacturing Industries (in editor's hands)  
 Pension Plans

*Reports in Process*

Suggestion Systems  
 The Function of the Purchasing Agent  
 Lateral Integration in Its Relation to Irregularity of Employment of Men and Machinery

*Continuous Services*

Labor Turnover

*Accounting Research.*—Accounting research has not gone forward as rapidly during the past year or so as in previous years because available funds did not admit of replacing Mr. Greer as head of this division. During the year a study of *Wholesale Grocers' Distribution Costs* was made in cooperation with the United States Department of Commerce. This study is to be expanded to several additional Ohio firms during 1930-31. In response to numerous requests, the Bureau has made a study of *Operating Expenses in Retail Furniture Stores*. This report will soon be available for distribution. The hatchery studies which were made in cooperation with the Ohio Poultry Improvement Association have had an excellent reception and represent the only effective work which has as yet been done on the business aspects of hatchery operation.

The progress of the Bureau in this field during the past year, and the program for 1930-31, are shown below.



## EXHIBIT IV

## ACCOUNTING RESEARCH REPORTS, 1929-30

*Reports Completed, 1929-30*

Operating Results of Ohio Wholesale Grocers—Year 1928  
Accounting Requirements of a Small Hatchery—Preliminary Report (Study made at the request of the College of Agriculture)  
Accounting System for Hatcheries—Manual and Set of Books  
The Cost of Handling Merchandise Returns  
Wholesale Grocers' Distribution Costs

*Reports in Manuscript*

Operating Results in Retail Furniture Stores (in editor's hands)  
Operating Results of Ohio Wholesale Grocers—Year 1929

*Reports in Process*

Operating Results in Ohio Accredited Hatcheries—1929  
The Cost of Retailing Coal

*Reports in Prospect*

Stock Control Studies (in cooperation with Marketing staff)  
Uniform Accounting System for Various Building Trades

*Investment and Banking.*—The Bureau does not at present have any individual who is specifically assigned to investment and banking research. In the nature of things, however, many of the reports which are issued, and particularly a great deal of the material compiled for the *Bulletin of Business Research*, is of an investment and banking character. The Bureau receives insistent requests from the real-estate field, the banking field, and the building and loan field for studies, and hopes to be able to meet this demand.

The following studies have been tentatively set up in this field:

## EXHIBIT V

## INVESTMENT AND BANKING REPORTS, 1929-30

*Studies in Process*

Investment Policies and Practices of Insurance Companies

*Studies in Prospect*

The profits of banking classified by types of banks and by counties in Ohio, together with some historical development of the banking resources of various areas of the State

## BUREAU STAFF

During the past year several changes have occurred in the personnel of the Bureau staff. Mr. Watkins resigned July 15, 1929, to accept a position in the National Bureau of Economic Research. Miss Lowrie resigned February 1, 1930, to accept a position with The John Shillito Company, at Cincinnati. Mr. Brunsman is resigning August 1, 1930, in order to complete requirements for a Ph.D. degree in statistics at Columbia University. He is also receiving employment from the National Bureau of Economic Research.

It is not expected at present to fill the vacancy created by Mr. Watkins' resignation, the intention being to bring Mr. Brunsman back from Columbia University for this position. In the meantime, the Director and members of the statistical staff of the College of Commerce and Administration will assume the responsibility of handling the statistical portion of the work of the Bureau. The vacancy created by Miss Lowrie has been filled by the employment of Mr. Hooper, who has had several years of experience in budgetary

and cost accounting with the Ohio Fuel Gas Company and other business concerns. A necessary addition to the marketing staff has been made in the case of Mr. Widener. Mr. Widener was transferred to the Bureau from the Department of English of this University, where he was an instructor in engineering English. Previously, Mr. Widener had majored in economics and therefore does not come into this work as an entire stranger.

Both Mr. Watkins and Miss Lowrie left the Bureau to accept more lucrative positions, and Mr. Brunsman will receive from the National Bureau of Economic Research, for part-time compensation during his attendance at Columbia, a large fraction of his total annual salary here. While the training and experience which the Bureau's work gives to staff members is an important contribution to education, the program of the organization must inevitably suffer if sufficiently attractive possibilities in salary and in promotion cannot be held out to competent staff members to retain their services. This is one of the most serious problems which faces the administration of the Bureau.

It is hoped that the Bureau appropriation may be sufficiently expanded to enable the Bureau to retain valuable members of its staff, and at the same time to maintain the present level of operations.

## DEPARTMENT OF COMMERCE EXTENSION

The program of the Department of Commerce Extension for the academic year 1929-1930 has been practically identical with that of the preceding years. The following relates to the growth of the department, student personnel, cities served, miscellaneous activities, and changes in staff:

### I. Registrations<sup>1</sup> for regular university classes since the organization of the Department:

Academic year.....	1925-26	1926-27	1927-28	1928-29	1929-30
Registrations.....	397	608	1,228	1,456	1,433

The failure to show increased registration in 1929-30 over 1928-29 is explained by the fact that only two courses were offered this year in business law as against seven courses last year. The number of students constituting the total student body of the department, eliminating duplications, is 648 for the current academic year.

### II. Classification of students for current period:

#### 1. *Vocation*

Major and Minor Executives .....	35.4
Accountants .....	21.0
Clerks .....	18.5
Teachers, Library Workers, Social Workers .....	14.2
Salesmen and Buyers .....	6.3
Lawyers .....	2.1
Miscellaneous .....	2.5

#### 2. *Maturity and Educational Qualifications*

Average age of students .....	32
Range of ages .....	18-64
Per cent high-school graduates .....	86.3
Per cent 1-4 years in college .....	57.0
Per cent college or university degrees .....	17.0
Per cent former Ohio State students .....	18.4
Per cent Ohio State graduates .....	2.9

The above is based on the registrations for last autumn which for the most part covered two quarters, and for many students, three quarters. It may be regarded as approximately correct for the year.

<sup>1</sup> One registration means an enrollment for one course for a single quarter.



### III. Cities served, courses offered, enrollment, instructor-in-charge for the current period:

CITY	COURSE	ENROLLMENTS			INSTRUCTOR
		1st Qr.	2nd Qr.	3rd Qr.	
Ashland.....	Money and Banking, 610 A, B.....	11	11		Kimball
Barberton.....	Negotiable Instruments, 625 A.....	14	...	...	Ley
Canton.....	Managerial Accounting, 617 A.....	40	...	...	Jones
	Auditing, 607 A, B.....	30	29		Jones
	Investments, 658 A, B.....	38	39	...	Kimball
	Industrial Finance, 652 A.....	...	12		Kimball
Columbus.....	Adv. Prin. of Accounting, 601 A, B, C	42	46	29	Dickerson
	Managerial Accounting, 617 A.....	38	...	...	Jones
	Auditing, 607 A, B.....	23	22		Jones
	Prin. and Prob. of Econ., 601 A, B....	23	23		Chase
	Transportation Economics, 618 A, B....	21	19	...	Kibler
	Corporation Finance, 650 A, B.....	38	38	...	Kimball
	Investments, 658 A.....	...	32		Kimball
	Salesmanship and Sales Management, 712 A, B.....	49	47	...	Chase
	Principles of Sociology, 401 A, B, C..	38	40	18	Denune
Findlay.....	Cost Accounting, 603 A, B.....	40	40	...	Dickerson
	Prob. in Cost Accounting, 605 A.....	...	19		Dickerson
	Principles of Sociology, 401 A, B, C..	20	19	11	Denune
Fremont.....	Prin. and Prob. of Econ., 601 A, B, C	25	24	9	Chase
Lima.....	Principles of Sociology, 401 A, B, C..	23	23	19	Denune
Mansfield.....	Salesmanship and Sales Management, 712 A, B.....	28	27	...	Chase
	Marketing Problems and Market Analysis, 702 A.....	...	14		Chase
	Adv. Prin. of Accounting, 601 A, B, C	10	10	6	Dickerson
Mt. Vernon.....	Sales and Agency, 623 A.....	16	...	...	Ley
Newark.....	Prin. and Prob. of Economics, 601 C..	13	...	...	Chase
Tiffin.....	Adv. Prin. of Accounting, 601 A, B, C	21	22	11	Dickerson
Warren.....	Adv. Prin. of Accounting, 601 A, B, C	22	22	15	Jones
Youngstown.....	Corporation Finance, 650 A.....	11	...	...	Kimball
	Investments, 658 A, B.....	18	22	...	Kimball
	Managerial Accounting, 617 A.....	21	...	...	Jones
	Auditing, 607 A, B.....	16	14		Jones
	Industrial Finance, 652 A.....	...	12		Kimball

IV. It is noteworthy that, in the cities in which one or more courses are offered, a total of 59 students from 32 neighboring cities have participated in the regular weekly class meetings. Some of these cities are as far as forty miles from the city where courses are offered.

V. In addition to the regular program of university classes, which constitutes the major part of the activities of the department, institutes have been conducted, in cooperation with resident departments, for the benefit of the following groups: State Accountants, State Newspapers, and Canton Controllers. The department has also cooperated with the resident Department of Accounting in supervised practical training for undergraduates majoring in Accounting.

VI. Three of the four full-time members of the teaching staff of the department resigned at the conclusion of the academic year 1928-29. Their places were filled by the appointment of the following to the positions indicated.

Wm. E. Dickerson, Ph.D., Assistant Professor of Accounting  
J. Weldon Jones, M.B.A., C.P.A., Assistant Professor of Accounting  
Milo Kimball, M.B.A., Assistant Professor, Dept. of Finance

The teaching staff of the department is well qualified to carry the best traditions of the University into the extension classroom.

## RECOMMENDATIONS

I. The department now offers a limited number of specialized courses which make their appeal to particular constituencies. It has no well-defined program, or grouping of courses, to place before those who desire to prepare themselves for a business career. The appeal is therefore limited to those mature people who are interested primarily in pursuing a particular subject to supplement their business, or professional, training.

In addition to courses for the constituency to which reference is made above, the department should have a well-rounded, educationally defensible program for the benefit of younger business people who are starting upon their business career, as well as for those who are just out of high school but are unable to continue their business education by going to college. Details with regard to such a program were set forth in a report submitted at the request of the Board during the autumn of 1928. The proposals contained therein are repeated, with minor modifications, in the memorandum accompanying recommendations for the next biennium.

II. If consistent with the administration of the affairs of the College, it is suggested that members of the resident staff might be made available for a contribution to the extension program, and members of the extension staff likewise available for resident work. This would, of course, involve an adjustment of teaching-loads and, presumably, an intra-college bookkeeping arrangement. These are details that have been worked out successfully by nearly all the institutions of learning which offer an extension program.

The Department of Commerce Extension is not in fact a department; it is a composite of other departments of the college. The extension service could be expanded most efficiently and economically if some of the specialists of the resident staff could be called upon to offer perhaps one course a week in extension. This would of course involve the consent of men who are now on the resident staff and whose services might be desired, and the approval of the Dean and the chairman concerned. New men coming to the College of Commerce and Administration, however, could be employed with the understanding that they might be assigned a certain amount of work in extension. This has been done with success at the University of Kansas, and other institutions.

It is not proposed to substitute the above arrangement for the present, which involves a full-time commerce extension staff. It is believed that it will always be necessary to maintain such a staff in order that sections of the State may be served that could not be reached by members of the resident staff without interfering with their resident class work. It would probably have to be understood in employing personnel that they are attached primarily to a resident department or to the Extension Department, as the case may be, but that incidental services may be required subject to such limitations as might be desirable. It is proposed, in short, simply to eliminate the barrier between residence and extension so that inter-departmental adjustments might be made for the good of both at the discretion of the Dean, the chairman of the department concerned, and the Director of Commerce Extension. The recognition of this principle does not in itself relate to expansion.

III. It is believed that the services of the department could be made available to a very large constituency in the smaller towns and the country districts if a correspondence feature could be provided. According to a report



of the Carnegie Foundation made two years ago, the commercial correspondence schools were receiving in fees about \$70,000,000 per year from approximately 4,000,000 students. It may be conservatively estimated that \$3,500,000 of this annual expenditure comes from Ohio. Last year it was reported, on good authority, that two out-of-state commercial correspondence schools enrolled 1,200 students in one Ohio city having a population of less than 30,000. The estimated expenditure for the service was \$150,000. This incident is cited in order to emphasize the demand for correspondence courses, and the large opportunity for a high-grade university service in this field for the benefit of the business interests of the State. Requests for this type of service are constantly coming into the office from all parts of the State, and elsewhere.

IV. It is recommended that student fees be set aside in a revolving fund and made available for the development of the extension service. This policy is followed by nearly all the state universities of the country which adhere to the principle that accruals from extension fees should be applied to extension instruction just as resident fees are applied to resident instruction. Such fees are either made directly available, or else converted into general funds and reappropriated for the use of extension.

#### CONCLUSION

The Department of Commerce Extension has an opportunity to render a service of far-reaching significance to the business and social welfare interests of the State. This cannot be accomplished through occasional courses involving the building up of class groups only to let them lapse on account of our inability to follow them through with a group of courses arranged in logical sequence. The above proposals having to do with the enlargement and coordination of the program and the increase in the variety of offerings through the aid of members of the resident staff, have as their objective the development of a bureau that will render a valuable service to the State with maximum efficiency and economy.

It is believed that the proposals made are the minimum consistent with the spirit of progress and with a desire to fulfill our responsibility to the administration and the State.

#### REPORT OF THE JUNIOR DEAN

C. W. REEDER

At the close of the second year of my service as Junior Dean in the College of Commerce and Administration, I desire to submit a report covering the major activities of the year 1929-30:

1. A follow-up of 100 Freshman Week interviews
2. Interviews with 286 students following the mid-quarter reports
3. A study of the relation of the mid-quarter reports to final grades, 1927-29.
4. Interviews with 61 students of superior ability
5. Forty-three interview sections conducted with 1,053 students interviewed by fourteen different instructors
6. Deficient students placed in the remedial projects conducted by Professors Pressey and Stogdill
7. An analysis of the improvement in scholarship since the organization of the College in 1915
8. Study made of 249 readmission cases

9. Consideration given to difficulties involved in student transfers
10. Important changes made in the curriculum in the junior area
11. Preliminary studies made on problems arising in setting up the junior-senior divisions
12. Investigations initiated to forecast scholastic success for freshmen
13. Participation in the activities of the Junior Council

#### FOLLOW-UP OF FRESHMAN WEEK INTERVIEWS

During Freshman Week, 1929, nearly all of the entering freshmen in the College were interviewed by their Faculty Leaders. Reports were prepared on these interviews noting especially any factors in the student's backgrounds which might militate against his success in college. After a critical reading of these reports, a list of nearly 100 students was prepared for follow-up interviews. Each student was seen personally, and the particular factor in his case was discussed in its relation to his college program. The two main problems revolved around outside employment and the proper choice of course of study or college. When it seemed absolutely necessary, proper adjustments were made in the schedule; otherwise, students were urged to follow strictly the program which has been undertaken in the College.

#### INTERVIEWS ON MID-QUARTER REPORTS

After the issue of the mid-quarter reports in the Autumn Quarter, 1929, there was prepared a list of 286 students to be called in for conference. They were asked to come to the office and to go over in detail the reasons for unsatisfactory grades in their courses. Efforts were made to set up definite study programs, to arrange for conferences with instructors, to cut down time devoted to outside activities, to shorten hours of employment, and in fact to make any and every adjustment which would seem to improve the opportunity for doing better class work.

At the end of the quarter, the grades earned by these students were checked again. It was found that 142 grades had been raised to a satisfactory basis, 25.7 per cent of the former unsatisfactory number. The D grades were reduced 54.4 per cent of the whole to 32.8 per cent, or a reduction of 21.6 per cent. Reduction of E grades was negligible—only 1.4 per cent.

Just how much influence an interview had with this group of students is very hard to measure. It constituted only one of the methods used to stimulate them to greater activity.

#### RELATION OF MID-QUARTER REPORTS TO FINAL GRADES

In connection with the interviewing concerning the mid-quarter reports, a rather extensive study was made of the predicative value of these reports. It was undertaken to determine how much value they really have and how they can be used to greater advantage. The data used cover the years 1927-29 and include 8,473 grades. In general the following facts were revealed:

The grade "satisfactory" became a C or above in 85 per cent of the cases.

The grade A maintains its status in 61 per cent of the cases, dropping to B in 26.2 per cent of the grades, and to C in 10.4 per cent.

The grade B results in 48.3 per cent of the cases, increasing to A in 22.9 per cent, decreasing to C in 22.3 per cent, and to D in 3.6 per cent of the grades.

The grade C results in 51.4 per cent of the cases, increasing to B in 23.8 per cent, and to A in 3 per cent of the grades. However, 16.6 per cent decreased to D and 3.7 to E.



The grade D persists in 38.4 per cent of the cases with 33.7 per cent increasing to C, 5.6 per cent to B; and 0.8 per cent to A. The decrease to E was 18.6 per cent of the grades.

The grade E remains an E in 64.4 per cent of the cases. The increase to D is 25.9 per cent, to C, 7 per cent, to B, 1.2 per cent, and to A 0.6 of the cases.

The grade "unsatisfactory" means an E in 39.6 per cent of the cases. The grade D is given in 24.6 per cent, C in 19.2 per cent, B in 11.2 per cent, and A in 3.9 per cent of the cases.

This study shows rather definitely that very little can be done with the E student. The same fact is brought out in other sections of this report. Major emphasis should therefore be placed on maintaining the quality of classroom work indicated at mid-quarter for the better students and in stimulating efforts to its improvement.

#### INTERVIEWS WITH STUDENTS OF SUPERIOR ABILITY

From the scores made by students in the intelligence examination, given at the opening of the Autumn Quarter, a list was prepared early in the Winter Quarter of 61 persons whose percentiles were 91-100, constituting the upper 10 per cent of those who took the examination. Each of these persons was requested to come to the office for an interview regarding the work they had done in the Autumn Quarter. These students were told that they had made a high score in the intelligence examination, and that they were expected to be the leaders in their respective classes. Efforts were made to ascertain the lines of interest and the fields in which they desired to go much farther than the ordinary class assignments. Instructors were apprised of the presence of these students in their classes, and their desires for going deeply into the subject matter of the respective courses. In the Spring Quarter these students were interviewed a second time. Their record for two quarters was discussed with them in all of its ramifications. If a student was not measuring up to his possibilities, an attempt was made to ascertain the reasons. In general, a real effort was made to be of some service to the highest mental group in the college.

What were the results? For comparative purposes a division was made between the students who came directly from high school and those who transferred from other universities. For the group direct from high school, the following table shows the point-hour ratios earned for the three quarters:

Point-Hour Ratio	Autumn Quarter	Winter Quarter	Spring Quarter
Range .....	.62-3.82	1.33-4.00	.62-4.00
Median .....	2.60	2.68	2.49
Median Cumulative .....	.....	2.65	2.52

The same data are presented for the students who transferred to the College from other universities:

Point-Hour Ratio	Autumn Quarter	Winter Quarter	Spring Quarter
Range .....	1.62-4.00	1.00-4.00	.33-3.87
Median .....	2.93	2.45	2.29
Median Cumulative .....	.....	2.53	2.58

Five students (9 per cent of the entire group) had maintained a B for the three quarters, and these had come directly from the high school. No one of the transfer students had a B average. Fifteen students (27 per cent of the entire group) had averaged less than C work for the year. If the highest 10 per cent of the entering class function in this way, it is fairly evident that the means to motivate for superior work, as represented by grades, have not been discovered. Perhaps it will be necessary to ask the successful student just how he does it, and then teach the techniques to the group which is supposed to be superior in mental ability.

#### INTERVIEW SECTIONS

The practice was continued this year of getting instructors to meet their students for short personal conferences in their offices to talk over various matters in a friendly interview. The gifted student was to be urged to make wider excursions in the subject matter of courses; the weak student was to be assisted by an analysis of his difficulties; the average student was to be kept on an even keel, but with a decidedly toning-up process under way. For each student a "personal data sheet" was prepared and handed to his instructor. Important facts in the student's background and college record were thus placed directly in the instructor's hands. After each interview the instructor prepared a report on the student, giving his impressions and analysis of his work and ability. These reports are filed in the Junior Dean's office and constitute part of the student's record. The following table shows the extent of this project as carried out this year:

INTERVIEW SECTIONS 1929-30

	AUTUMN QUARTER, 1929		WINTER QUARTER, 1930		SPRING QUARTER, 1930		TOTAL	
	Number Sections	Number Students	Number Sections	Number Students	Number Sections	Number Students	Number Sections	Number Students
J. D. Blanchard.....	....	....	....	....	1	26	1	26
N. C. Burhans.....	2	46	1	21	1	27	4	94
A. F. Cameron.....	....	....	2	48	1	33	3	81
F. A. Carlson.....	1	41	1	25	1	33	3	99
T. L. Easterling.....	1	11	1	15	1	32	3	58
M. L. Fair.....	1	22	....	....	1	31	2	53
J. H. Garland.....	....	....	3	55	2	67	5	122
J. S. Kegg.....	3	68	2	59	3	61	8	188
J. W. Ley.....	....	....	....	....	1	27	1	27
C. L. Parry.....	1	29	1	28	1	28	3	85
R. Peattie.....	....	....	1	20	....	....	1	20
N. G. Riddle.....	3	69	2	41	1	25	6	135
J. J. Spengler.....	2	48	....	....	....	....	2	48
E. N. Yantes.....	1	17	....	....	....	....	1	17
Totals.....	15	351	14	312	14	390	43	1,053

From the above table, it is seen that fourteen different instructors participated in the work during the year, that 43 sections were involved, and that 1,053 interviews were conducted.



It is not yet absolutely certain just how much utility there is in the interviews conducted by the instructors. In general, they report a better understanding and knowledge of their students. The following statement is typical:

I assure you that the contacts I made with the students in my interview sections were worth while from my point of view. They not only helped me to an understanding of the student and his aims and ideals, but at the same time I have learned much about students that helps me to appreciate their viewpoints of life. I trust that they have a different view of their instructor.

The students, too, express themselves in enthusiastic terms over the opportunity to get better acquainted with their instructors and to go over obscure and difficult points in the course of study. Subjectively, the method is approved, but objectively, the results are not certain. The students do not seem to do any better work than under the non-personalized system. It is proposed to submit the project to some very definite quantitative measurements during the ensuing school year to determine its net gains.

#### REMEDIAL PROJECTS

During the Autumn Quarter, 1929, seventy-four students in the freshman class were assigned to the remedial reading project conducted by Professor Luella C. Pressey. Seventeen failed to complete the assignments in this special course. No special follow-up has been made to see how well this group performed during the remainder of the year.

During the Winter Quarter, 1930, the remedial work was confined to the first-quarter students who went on probation. It was again under the direction of Professor Pressey. The College of Commerce had 52 students in this project. Twelve were excused from the assignment chiefly because of schedule difficulties. These students were given a very thorough training in study techniques, and a number were enabled to return to good standing. How permanent the reformation is has not been determined as yet.

In the Spring Quarter, 1930, use was made of Psychology 411 as the remedial project. Fifteen students were assigned to the course. The work was under the direction of Dr. Emily L. Stogdill. All the students were on probation and in dire need of training in study habits. Five failed out of the University in spite of these special efforts.

When viewing these remedial projects, the question naturally arises, Are they worth while? Undoubtedly, many students are helped to form new study habits, and many potential failures are saved. But for a majority of them it is only postponing the day when they will either withdraw from the University from discouragement or be dismissed for failure to meet the academic standards. Many of them should never have attempted university work. Under present conditions, it seems that the University must assume more than its normal responsibility toward such students, and attempt to repair deficiencies in their early training. How far such a program should go is an open question and not yet settled. At present, however, the feeling is that when the University has gone to the limit in its efforts to remedy such deficiencies, and in spite of such efforts, the student fails, then the responsibility rests upon the student, and not upon the University.

#### IMPROVEMENT IN SCHOLARSHIP

The year has witnessed the greatest improvement in scholarship since the organization of the four-year program in the College in 1923. This

improvement has come through a decrease in the percentage of unsatisfactory student records. The years from 1923-24 to 1928-29 showed a steady increase in delinquency from 27 per cent to 39 per cent, based on the Autumn Quarter data. The Autumn Quarter, 1929, showed 29 per cent unsatisfactory, a decrease of 10 per cent from the high peak the preceding year. The following table presents the data for freshmen and sophomores for the year 1926-27 to 1929-30.

PERCENTAGE UNSATISFACTORY RECORDS

YEAR	FRESHMEN			SOPHOMORES		
	Autumn Quarter	Winter Quarter	Spring Quarter	Autumn Quarter	Winter Quarter	Spring Quarter
1926-27.....	48	41	39	39	37	34
1927-28.....	42	40	34	36	36	30
1928-29.....	46	36	32	41	27	24
1929-30.....	36	30	..	32	29	..

An explanation for this situation is rather complicated, inasmuch as many factors contribute to the improvement. Among them the following may be noted: a better selection of teachers, more careful supervision of instruction by course supervisors, more interest by teachers in their teaching and in their students, better classroom facilities, reduction in size of classes, orientation in Freshman Week, development of remedial programs for poorly prepared students, greater seriousness on part of students, more careful advisory work on the part of high-school officials, and activities of the Junior Dean. There has been a general toning-up in the whole life of the University, and the College has felt its benefits, too. It will be interesting to see whether or not the change is permanent, and if it is still possible to reduce the delinquency percentage still lower.

#### READMISSION OF STUDENTS

One of the most difficult problems which the Junior Dean faces is the handling of requests for readmission to the College on the part of students who have been dismissed for scholastic failures. At certain times in the year many hours, even days, are occupied with such cases. Later, the Executive Committee of the College wrestles hours with the same cases, in attempting to arrive at decisions which are fair and just.

In appraising the results of previous readmissions and in an endeavor to study the behavior experiences of such cases, the Junior Dean has examined the records of 249 readmissions covering nine consecutive quarters, Autumn Quarter, 1927, to and including the Autumn Quarter, 1929. During this time, 58 readmitted students withdrew voluntarily from the college, 95 were dismissed, 9 transferred to other colleges, 8 were graduated, and 15 did not exercise their privilege to return. Sixty-four were still in school during the Winter Quarter, 1930. Their records have not been followed, although it is known that a number have failed to make good. Among the significant points which were developed in this study, one stands out very prominently, namely, that a readmitted student remains in school only a very short time after readmission is granted. The statistics show that 9.1 per cent of such students withdraw before completing one quarter; 58.3 per cent finish one quarter only; 18.9 per cent complete two quarters, and 6.5 per cent complete one year. Thus



86.3 per cent of the readmissions are lost within two quarters, and 92.8 per cent are lost within a year. Of those who finished one quarter, 72.2 per cent were dismissed, while others voluntarily decided to withdraw from college. Of those who completed two quarters, the number of dismissals and withdrawals is the same, with one person being graduated.

Hell is said to be paved with good intentions. From the expressed purposes and promises of readmitted students and those denied readmission, several such places could be paved many times. But when educational processes are under way day in and day out and when there is need for the qualities which make for successful performance in the college classes, then the old habit structure asserts itself, and a promise for reformation is not worth much more than an iceberg at the equator.

In the case of freshmen, the Executive Committee has adopted a very liberal policy. It is based on the theory that a student should have a year's trial at the University. During this time every effort is made to supply him with good teachers and facilities for work. If he fails in his early adjustments, efforts will be made to assist him over these difficulties, even to an immediate readmission to the College. But after a year and after the University has done all it can, if a student fails, then it is clearly his responsibility, and he must assume all the obligations involved.

#### TRANSFERS OF STUDENTS

One of the problems that causes embarrassment in the college relationships is the desire of probation students and weak students in other colleges to transfer to the College of Commerce. The grass seems greener in this field than in the other pastures. This situation is further complicated by the inability of the College of Education to keep longer than one quarter any student who fails the intelligence examination, and also by the approach of the time when the 1.9 requirement of the College of Arts will be effective on the sixth-quarter students. The College of Commerce desires to give to all serious-minded students an opportunity to pursue courses of study in the special curricula which the College offers, but it does not desire to become a dumping ground for students who fail in other colleges and want to extend their residence in college for a variety of reasons. The situation is now being handled under a gentleman's agreement with the University Examiner. However, the ensuing year will see the problem intensified. It needs very careful study by the colleges concerned, because it affects the whole University policy regarding students who find it difficult to maintain a minimum standard of scholarship.

#### CURRICULUM CHANGES IN THE JUNIOR AREA

Early in the year the College Faculty provided for a committee to study the content of Social Science 400-401 and the relation of these courses to the general freshman program. Later this committee was discharged and a new one set up to study the curriculum in the junior area. The Junior Dean was a member of both committees. For the latter committee he devoted considerable time to the preparation of data and memoranda and to interviews with faculty members in the discussion of problems arising in this area. The report of this committee was presented to the Faculty, June, 1930. The major changes adopted are as follows:

1. A reduction in the foreign-language entrance requirement from 3 units to 2 units, and the requirement of 10 hours (2 quarters in one language) from any student who presents less than 2 units for entrance.

2. The dropping of Social Science 400 and the organization of an Industrial History course in the Department of Economics.

3. The transferring of Social Science 401 to the Business Organization Department and the organization of a course entitled Introduction to Business.

4. A correlation of content among Economics 401-402, Business Organization 401, and the new Industrial History course.

5. A wider requirement for Sociology in the sophomore year.

6. A simplification of the requirements and courses in the Industrial Management curriculum.

In connection with the study of changes needed in the curriculum in the junior area, the College Faculty set up a special committee to study the mathematical content in all of the commerce courses. This committee collaborated with a committee from the Department of Mathematics. Arrangements were made with the Bureau of Educational Research to make a job-analysis of the commerce courses, and to segregate the mathematical problems. This work was done under the direction of Professor R. W. Tyler. The report which he submitted to the committee included a statement of the problems as found in the texts, a frequency table of mathematical terms used, a set of algebraic formulae for solving the problems, and a list of the arithmetic processes needed to solve the problems indicated. After consultation with the Department of Mathematics, the College Faculty adopted the following changes:

1. A segregation of commerce students in Mathematics 421 for the purpose of special instruction.

2. A revision of the content in Mathematics 421 to include the material revealed in Professor Tyler's analysis of the commerce courses.

3. A wider requirement of Mathematics 421 throughout the College, especially in the Marketing and Industrial Management curricula.

With these changes in the curriculum in the junior area, the college now has a two-year program which serves two main purposes: (1) a basic foundation for the professional courses of the senior area, and (2) a rounded two-year general program if the student completes only six quarters in the college.

#### JUNIOR-SENIOR DIVISION

Some preliminary consideration was given during the year to problems which will arise when the junior and senior divisions are set up more definitely in the College. One such question relates to the cumulative point-hour ratio which should be required for admission to the senior division. To study this point, a statistical analysis was made of all students in the college completing their sixth quarter in June, 1929. The following table is presented from the report, showing the number and percentage of dismissals which would have occurred at various levels of the cumulative point-hour ratio.

Cumulative Point-Hour Ratio	Cumulative Number of Potential Dismissals	Cumulative Percentage of Sixth-Quarter Group
Less than 2.00.....	113	44.8
Less than 1.90.....	88	23.9
Less than 1.80.....	65	25.8
Less than 1.70.....	40	15.8
Less than 1.60.....	30	11.9
Less than 1.50.....	17	6.7



The analysis was extended to the students in the senior area to see how many such students, then in residence, would not have been permitted to continue their studies, if they had had cumulative point-hour ratios as indicated in the following table.

Cumulative Point-Hour Ratio	Cumulative Number of Potential Dismissals	Cumulative Percentage of Sixth-Quarter Group
Less than 2.00.....	214	50.1
Less than 1.90.....	178	41.7
Less than 1.80.....	132	30.9
Less than 1.70.....	99	23.1
Less than 1.60.....	67	15.7
Less than 1.50.....	43	10.0

The exact point-hour ratio level which should be fixed for dismissal at the end of the sixth quarter is a question of serious moment both for the students and for the determination of transfer privileges among colleges.

#### FORECASTING SCHOLASTIC SUCCESS FOR FRESHMEN

Divining the future has always been a fascinating game for mankind, and it presents a nice problem to forecast what an incoming group of freshmen will do in the University. This problem is complicated by the lack of certain basic data which the University does not get from the student or from the high schools prior to their enrollment in the college. The question is now under study in cooperation with the Bureau of Educational Research.

It is proposed for the next year to pick out before they come to the University the students who will fail or go on probation. Immediately upon arrival here, it is proposed to place them in the remedial projects, and to see if anything can be done to replace the old habit patterns with such techniques as are needed by college students. It may be several years before such forecasting will be perfected. However, with the data now at hand, it looks as if three out of every four failures and probation students can be spotted at the opening of the quarter. The data will also reveal the superior students and enable the dean's office to arrange a program with the individual instructors that will challenge their abilities.

#### JUNIOR COUNCIL

The Junior Council held 32 meetings during the year in addition to a two-days conference at the Mansfield Country Club. The Council meetings are much like a seminary in problems of university education, where each dean reports on both his research activities and his field (office) work. In such conferences the problems which confront the junior deans are discussed from every angle. Members of the faculty and university administration are called in for their advice. Tentative solutions are suggested; then they are tried out in actual practice, and the results are checked up. In this way the Council is exploring one by one the problems in the junior area, and seeking solutions to them. The Council is unusually fortunate in having the advice and judgment of Dr. W. W. Charters. His wide experience in university administration has been of inestimable value to the junior deans. Each man feels that association with such a man is an experience of a life time.

## MISCELLANEOUS ACTIVITIES

During the Autumn Quarter, 1929, the Junior Dean taught one section of Business Organization 700, Marketing. The only departure from the established procedure was an experiment with the newer type of examination questions.

For the other quarters, teaching was confined largely to substituting for other instructors. One section of Social Science 400 was carried for two weeks for Miss Stitt (Spring Quarter) and one section Business Organization 700 was carried one day per week for the Spring Quarter for Professor T. N. Beckman.

Because of the resignation of Professor F. E. Lumley from the Freshman Week Council, the President changed the type of organization of that project for the current year, and appointed the Junior Dean as Director of Freshman Week. This assignment of duties has necessitated some absence from the regular college duties for the Spring Quarter. However, the burden of detail has been decidedly lightened by the transfer of a secretary from the President's office to the Freshman Week office.

The Junior Dean has continued his duties as Secretary of Phi Beta Kappa Society, and has been re-elected for another year.

During the year a number of prepared addresses have been given before various meetings and organizations. The following list includes the major engagements.

- Oct. 15—"Barometers of College Success," Freshman Y Council
- Oct. 29—"The College of Commerce," Ohio 4-H Club Congress
- Nov. 22—"Standards for Judging a Library System," Franklin County Council of Women
- Dec. 3—"Ethics of Business," Ohio State Sealers Convention
- Feb. 18—"Student Problems and Their Solution," Chamber of Commerce, Bellefontaine, Ohio
- May 4—"Vocational Guidance," Vocation Day talk at the First Presbyterian Church
- May 11—"A Mother's Wish," A Mother's Day talk at the Methodist Student Center
- May 18—"Values in Human Life," Baccalaureate Address, Wilmington, Ohio
- July 1—"Personnel Work in the College of Commerce," National Business Section, N.E.A.

## APPRECIATION

Throughout the year, the Junior Dean has had the constant advice and sympathetic cooperation of the Dean of the College. Without such an attitude it would have been impossible to undertake many of the things which have been attempted in the junior area. An open and unprejudiced mind, with a fair appraisal of methods and activities, means much to one who is working in an area which is uncharted and new.

The Junior Dean desires to record his appreciation for the faithful and efficient service rendered by his secretary, Miss Ruth Cotterman. She has participated in many of the projects discussed in this report, and handled several of them individually.



## COLLEGE OF DENTISTRY

*Dean, HARRY M. SEMANS*

The close of the second year requiring two years of work in the College of Arts and Sciences for entrance shows that the change from one to two years was a wise procedure. Students now entering Dentistry have completed the junior division of the College of Arts and Sciences, having pursued courses of a strong scientific basis, equipping them with fundamental knowledge of all biological, chemical, and physical subjects found in the curriculum of the junior division. This entrance requirement now allows the expansion of the medical-science courses offered to our freshmen and sophomores, so that within the near future dental students will be quite on a par in training with the same classes in medicine.

It is quite appropriate at this time to refer to the very cordial and sympathetic relationship and the understanding of our expanding needs on the part of those in authority in the various medical fundamental scientific courses.

These two items, entrance and increased medical science, will also allow us to work out advanced courses of a graduate type, wherein such students, including seniors, may in time enroll in the Graduate School. Specialized problems properly coursed are already contemplated.

### RESEARCH WORK

The following five projects pursued this past year in our Research Department will indicate the extent to which we can offer advanced courses.

1. The Lymphatic Circulation in Teeth. This is an attempt to investigate the circulatory possibilities in the teeth of man and experimental animals.

Methylene blue placed upon the exposed pulp of human teeth goes into solution in the lymph and is carried out into the dentinal tubules to the enamel. In some instances the less calcified structures of the enamel may become stained in this manner. This demonstrates a fairly rapid circulation in human teeth in the pulp dentine and peridental membrane. Possibilities of circulation in the enamel are much more in doubt.

Albino rats fed methylene blue in the food show pronounced staining in the forming enamel, in the pulp, and in the bone surrounding the teeth. This must come by way of the lymph stream.

The lymphatic connection between the upper canine teeth of dogs and the surrounding lymph glands, through the use of ferric ammonium citrate later precipitate as Prussian blue, will be carried out as soon as some experimental dogs, now being carried for another project, can be cancelled and used for this purpose.

A clinic showing sections of human teeth stained in vitro with methylene blue was given before the Ohio State Dental Society at its December meeting in Columbus. No formal report has been given on this project as yet.

2. The Bacteriocidal Efficiencies of Germicides Used to Eliminate Micro-Organisms Occurring in Putrescent Root Canals. In tests covering a number of agents commonly used in this sort of therapeutics, beechwood creosote was found to be the most satisfactory. A number of patients in the dental clinic have been treated with this and other germicides and records and X-rays (in some cases following the case over two years) have been assembled. Part of these cases were included in a report on this project presented to the American Dental Association in Washington in October.

The Department of Bacteriology, through Mrs. Bernice Tracy Horton, has cooperated in this project.

Experimental dogs have been inoculated in the lower canine teeth with organisms secured from putrescent canals of human patients and are being treated in the same fashion as our clinic patients have been. The dogs will later be cancelled and histologic sections of the infected treated areas will be secured to determine the eliminative action of beechwood creosote, thus supplementing the bacterial findings with histologic evidence. This project has been formally reported in part as above mentioned but no publication has yet occurred.

3. Historical Phenomena of Tooth Tissues as Observed Under Polarized Light. This work is essentially the application of the polariscope to tooth tissues.

A report of the progress to date in this project was published in the February, 1930, issue of the *American Dental Association*, and an abstract was prepared for and published in the *British Dental Journal* for February 1, 1930. A reprint of the original article on this report is available.

The problem of the enamel formation in the albino rat has received some attention in the past year, using the polarizing microscope to differentiate the phases of crystallization which takes place. At present it seems that the process differs considerably from the orthodox view, occurring en masse rather than through the activity of individual enamel-forming cells. More work must be done before definite statements can be made.

Mr. A. T. Cape and Dr. F. C. Blake have cooperated on this project, a formal report of which has been made as noted above.

4. A Study of the Rôle of Vitamin D in Some Dental Diseases. Albino rats with and without vitamin D in the diet have been inoculated with organisms of Vincent's Angina obtained from patients in the dental clinic. In neither of the rat groups was it possible to find any symptoms of the disease nor to recover the organisms of Vincent's Angina at the end of two weeks. It seems to us rather difficult to induce the disease in albino rats. We had hoped to be able to report the incubation period in these animals as well as the results of various therapeutic measures.

In regard to dental caries and the effect of vitamin D in the presence of large amounts of sugar in the diet, we have carried out such a feeding experiment on albino rats (usually immune to caries), and found that even after ninety days of such diet (started when the rats were 120 days old) we have very little caries present either in the groups with vitamin D, or without it. Evidently our rats were too old to start this work on. The series is to be repeated with younger animals. Microscopic examination of the oral tissues of the experimental animals has not yet been possible. Major S. J. Randall, D.C., has done the feeding work on this project.

5. Physical Properties of Dentine Model Materials. Compression tests of various materials on the market for the making of models over which dentures (plates) are made have been started. Much difficulty was involved in determining the proper consistencies to be used in these tests, but that has been settled and tests will be carried on as rapidly as possible. Dr. Cottrell, of the Dental College, has aided in the consistency determination.

A petrographic microscope and necessary accessories were added to the equipment of this laboratory during the past year.

A large number of ground sections of teeth as well as celloidin sections of materials from the mouths of dogs have been prepared in anticipation of the needs of a special dental histology course. Our cabinets for this purpose are not complete and much time will have to be devoted to this technical work before they are ready for classes.

Dr. Kitchin attended the following professional meetings during the year: American Dental Association in Washington in October, 1929.

Ohio State Dental Society Columbus, December, 1929.

American Association of Dental Schools in Toronto, March, 1930.

An abstract of the work with polarized light was given before the Columbus Dental Society.



An abstract of the work on root-canal germicides was given by Mrs. Horton before the Ohio Academy of Science, medical group.

A contribution was made to the Bulletin of the Ohio Dental Society covering biological research articles appearing in American and British dental journals from January to May, 1930.

#### SURVEY OF DENTAL EDUCATION

For several years it has been quite evident that a survey of dental education should be undertaken. A year ago the American Dental College Association approached the Carnegie Organization with the request that they finance such a project. At our meeting in March in Toronto, Dr. Seccomb, President of the American Dental College Association, announced that the Carnegie Organization had agreed to finance a dental education survey to be carried through the next two years.

#### PROFESSIONAL MEETINGS

In January Dean Semans attended a meeting at Columbia University of those dental colleges registered by the New York State Board of Regents, Harvard, Tufts, New York, Columbia, Buffalo, Pennsylvania, Western Reserve, Ohio State, and Illinois. The important item of this meeting was planning the construction of a syllabus in each subject taught dental students. Appropriate committees were appointed, and the work is now under way. Two of the chairmen of these committees are of our faculty. Professor William C. Graham is chairman of the committee on Oral Hygiene, and Assistant Professor John B. Brown is chairman of that on Physiological Chemistry.

The annual meeting of the American Dental College Association held in March at Toronto under the auspices of the College of Dentistry, University of Toronto, was attended by Drs. Bottenhorn, Graham, Hebble, Kitchin, and Semans. Dean Semans read a report on the advantages of the 2-4 plan in dental education, that is, two years of pre-dental preparation and a four-year dental course.

Two of our faculty this year have been elected presidents of important organizations. Dr. Bottenhorn is President of the Columbus Dental Society, and Dr. D. P. Snyder, President of the Ohio State Dental Society.

Various faculty members have been actively engaged the past year in giving papers and clinics as well as broadcasting. The following activities have been reported:

Dr. Hebble, has written papers on phases of Operative Dentistry, and the relation of dental conditions to the maintenance of health.

Dr. D. P. Snyder has made a dozen or more addresses at our various state district societies as well as at the annual meetings of the Chicago Dental Society, and Indiana State Dental Association.

Dr. Frank C. Starr gave papers and clinics at the meeting of the American Dental Association at Washington, D. C., also at that of the Ohio State Dental Society, and at four district meetings.

Dr. H. V. Cottrell read papers and gave clinics at meetings of the American Dental Association, Chicago Dental Society, National Society of Denture Prosthetists, and at five of our state district societies.

#### DENTAL LIBRARY

The donation of \$1,000 to our dental departmental library from the Carnegie Foundation has been made available. Miss Sinkey, Medico-Dental

Librarian, attended a meeting May 8-10, 1930, at the College of Dentistry, University of Michigan, of the representatives of dental libraries receiving aid from the Foundation. That this meeting resulted in much good for the future development of dental libraries is shown in her comprehensive report to Librarian Earl Manchester. Lists of first-, second-, and third-choice publications were made available at this meeting, and methods for future exchanges of magazines were adopted. Lists of publications for purchase under the Carnegie fund are now well under way.

#### MISCELLANEOUS

The following seniors were elected members of Omicron Kappa Upsilon, Honor Dental Fraternity:

Renwick G. Adams

Myer Alpern

Benjamin Walter

Sylvester Hunzicker

John G. Jordan

Frank Mramor

George Morr

George Wedell



## COLLEGE OF EDUCATION

*Dean, GEORGE F. ARPS*

In this annual report of the College of Education for the academic year 1929-30, details, other than statistical, are incorporated under the appropriate departmental subdivisions. These details reveal the progress of the College in its more essential aspects.

Attention is again directed to a number of conditions which should be remedied as soon as the State makes the necessary provisions. Among these may be listed the following:

1. Excessive teaching loads in the departments of Principles and Practice of Education and Music, and in the graduate work of the Department of Psychology.

2. Inadequate laboratory facilities and student assistance in the departments of Psychology, Music, Practical Arts, and Fine Arts.

3. Congested conditions in the Education Building, the lack of proper housing for the departments of Music and Practical Arts, and the need of an elementary and pre-school experimental laboratory.

The foregoing matters have been referred to from time to time through special reports and in conferences.

In the Department of Principles, the English division alone attempted to instruct and supervise approximately one hundred practice teachers with a personnel composed of two instructors and one student assistant. Authorities have it that twenty practice teachers constitute a full load. This division of the department should carry a personnel of five competent supervisors, that is, more than double the number now employed. It is obvious that in these circumstances real consultation with respect to lesson planning and real supervision simply do not occur. This situation has obtained now for a number of years. Add to this the fact that the public-school critic teachers contribute their services gratis, and no great levy on the imagination is necessary to appreciate our situation as regards practice teaching.

Conditions in the Department of Music cannot be justified. The teaching load is far in excess of an average of twenty hours per instructor. The fine spirit of the staff and its loyalty to the program of the department are matters deserving the highest commendation. The very least relief which the department should immediately receive is a number of first-rate student assistants. At present the staff not only teaches an altogether excessive number of hours but is compelled also to do all the routine and hack work connected with laboratory instruction.

Both the undergraduate and graduate work have far outstripped the University's appropriation for equipment and student assistance. For a period of ten years the Department of Psychology has planned to transform its procedure in elementary instruction from the purely recitative form to that of the laboratory. Our equipment is so meager as to make possible the transformation of approximately eight sections out of a total of seventy or more.

The facilities for the graduate work of the Department of Psychology are unsatisfactory by reason of the large student demand. The Graduate School

office reported an enrollment of seventy-eight students. A large percentage of these students require experimental set-ups for original investigation.

Not only are the equipment facilities and student assistance inadequate, but the space requirements for original set-ups is so limited that practically no instructor has in any sense a private office. Most of these offices have become centers of student activity. The Education Building has long since been outgrown. The worst of it is that no space in any other building can be made available. Space elsewhere would at least make the situation more tolerable in that the student would be provided with some sort of place for his set-up, and the instructor with something more than mere desk room. This applies especially to that fraction of the staff heavily engaged in supervising student investigations. All this is now a matter of common knowledge.

The statistical and intelligence test service under the direction of Dr. Toops has been in a state of chronic confusion for some time. The laboratory is a combination storehouse for records and a place to score tests. The hallway has been in continuous use for the clerical staff whenever the chaotic statistical laboratory could not be made available.

The Department of School Administration has closed all inter-communicating doors so as to make available the space occupied by the door-swing. There is no possible place for Dr. Klein, Dr. English, and Dr. Berry—and full professors—who have been added to the staff of the college. It is recommended that the last remaining recitation room be abandoned for instructional purposes and devoted to offices. It is also recommended that four temporary research rooms be constructed in the hall on the fourth floor. This request has repeatedly been denied.

For some time the Department of Practical Arts has been pressed for space. The Engineering College is rightfully yielding with reluctance to the pressure of this department for more room. The limit has been reached, and no further space can be made available since the engineers themselves are hard pressed. Any addition to the Education Building should provide space for the Department of Practical Arts.

During the year much attention has been given to the method of undergraduate instruction with notable improvement. Likewise much attention has been given to individualizing the student's progress in the earliest years of his University connection. In this individualizing process the student has been encouraged to assume an independent attitude and to some extent to undertake the mastery of his educational destiny. Some progress is made in overcoming the elementary- and secondary-school attitude of passivity. The high mortality rate in the Continental universities compels a rapid readjustment in attitude when the student passes from the secondary school to the University. No such conditions prevail in American universities. We require, therefore, a new technique.

The report of the Junior Dean sets forth the gains made in this important aspect of the instructional program of the College. It is especially noteworthy that the work of the Junior Dean and Dr. Durea is directed toward the learning process and toward the mechanics of education only when routine and mechanics bear intimately on learning.

There are very few "forked-road situations" presented to the student. A one-way educational thoroughfare without alternative highways is not provocative of thought. In these circumstances occasions for the development of the critical judgment are denied. Educational crossroads in the process of tuition



are all too frequently smoothed out or avoided. Thus our methodology requires of the student patience, toleration, and especially obedience. Professorial complaint of the student's indifference to scholarship frequently means that the student is deficient in rote reproduction rather than lacking in versatility and nimbleness of mind.

It is not surprising, therefore, that students turn from the halls of docility to social adventure. Current student opinion has it that classroom differences ("forked situations") generally increase the mortality rate. Docility is at a premium; thinking is penalized. Thus the students, following the law of survival, render unto Caesar what he demands—which is not differences. This procedure parallels the practice of the run-of-mine newspapers in "feeding the public what it wants." Thus do we impoverish!

Considerable progress has been made on the graduate level. More and more the emancipation process is in evidence. The Graduate School office has conservatively proceeded to place the responsibility for the student's program upon the student himself and upon the department concerned. Rules are diminishing and student and faculty responsibility increasing, as would be expected. Under these conditions the student is likely to assume an aggressive attitude toward education and thus abandon the prevailing indifference. Faculty responsibility through the agency of rules and regulations has largely impoverished the American student with respect to initiative and resourcefulness. What incentive to thinking when the educational sheep-runs prohibit alternatives!

It is probably true that self-education alone is educative. Accreting the content of any course under the watchful eye of the instructor is certainly something quite foreign to assimilating content under the principle of "inward consent." The indifferent passivity with which the American student body is afflicted, even in the graduate years, is a product of meticulous administrative regulation and of slavish classroom regimentation.

The belief in educational legislation as a means of securing scholarship appears to be losing ground. Such legislation possesses neither more nor less educational virtue than civil legislation *in re* morality. Very little could be said for it except by the educational parliamentarians who were more interested in a collegiate protective tariff than in genuine scholarship. It has generally become recognized that in the long run such a procedure is a defeatist program.

There are unmistakable signs that the graduate work at The Ohio State University is entering upon a new era in which the standard of attainment finds its genesis in the instructional competency of the department and in the serious attitude of the student rather than in the artificial, externally compelling regulations. As freedom and responsibility advance, the "guardianship of educational laws" recedes. An increased student mortality at the upper level is likely to be correlated with this movement. The notion seems to prevail that when a student has reached the final examination a presumption in his favor has been created. There should be no such exhibition of leniency. It is altogether likely that failures are too few even when the preliminaries to the final examination are rigidly enforced. Failure does not necessarily mean ultimate denial of the degree; in the large majority of cases such failure would mean additional study after the lapse of a sufficient interval of time between examinations.



## BUREAU OF EDUCATIONAL RESEARCH

During the year 1929-30 the most marked line of expansion has been projected into the field of higher education. Because of the deep interest in the improvement of instruction in Ohio State University at the present time, it has seemed advisable for the Bureau to direct its energies over a wider front than formerly in that area. Consequently, one of the units of the Bureau formerly under the charge of E. J. Ashbaugh has been reorganized, under the direction of Ralph W. Tyler. The major function of this unit is to study objective achievement tests in the field of higher education, with a view to substituting objective measurements for subjective opinion wherever this can be done effectively. Two other units have been added in this field. One is studying university personnel problems. This is under the direction of W. H. Cowley, whose major field of service is in carrying out studies for the Council of Junior Deans. The third unit is investigating the problems of university curriculum. It is in charge of Edgar Dale and the Director of the Bureau.

The policy of the Bureau is to act as a service organization for the assistance of faculties interested in investigations and studies in the instructional field. The Bureau is able to provide certain types of technical assistance to these investigators.

The regular activities of the Bureau have increased somewhat in number and scope. In all, ninety-eight projects are listed formally in the seven units of the Bureau. Since the first of July, 22,000 first-class letters have been received and 14,000 have been written.

Among the chief activities of the Bureau during the year are the following:

In the Appointments Division Earl W. Anderson and his staff are carrying on significant studies of the supply and demand of teachers, with a view to setting up procedures for the State Department to make an annual demand and supply analysis. The Division is preparing bulletins for the advice of prospective teachers, analyses of the experience of graduates, and extensive bibliographies.

As a service agency, the Appointments Division registered 931 old and new teachers (an increase of 148); placed 157 (an increase of 27); directly aided 74 (an increase of 26); and received calls for 1,551 vacancies (an increase of 297). Significant among these calls are 449 requests in connection with vacancies in college faculties—about 30 per cent of the total.

In the curriculum field three important studies are being carried on. In the College of Education, R. D. Bennett and the Director, as Secretary and Chairman of the Committee on Curriculum Revision, are directing a thorough-going revision of the courses of study of the College of Education. Edgar Dale and the Director are assisting the College of Veterinary Medicine in the reorganization of its curriculum. Ralph W. Tyler is assisting the College of Commerce and Administration and the Department of Mathematics in determining the mathematics used in all of the courses offered in the college.

In the personnel field, W. H. Cowley has acted as technical aide in collecting material for the committee on the evaluation of Freshman Week, for the committee appointed to study the relative merits of the quarter and semester plans, and for the Personnel Conference. Under his direction office manuals are being prepared in a number of areas.

Among the most interesting activities carried on by the Bureau are those connected with the study of moving pictures. Samuel Renshaw, of the De-



partment of Psychology, is cooperating with the Bureau by studying the influence of moving-picture attendance in the evening upon the sleep of children. Edgar Dale is making a comprehensive study of the attendance of children at moving-picture houses in Ohio; a pioneer analysis of the content of moving pictures; and a study of the methods of raising children's standards of taste in selecting moving pictures. These studies are being financed by the Payne Fund.

In the unit, School Surveys, the outstanding study of T. C. Holy has been made in cooperation with the State Department, leading to a comprehensive state rehabilitation project connected with the annual expenditure of \$2,000,000 for buildings, repairs, and equipment in state-aid districts, of which there are approximately 700. In 29 counties, programs of rehabilitation have been set up, and according to these the state money is now being expended. Comprehensive surveys have been made of the schools of Springfield, Ohio, and of eleven other school districts. These surveys are used as a basis for bond issues. Recently Mr. Holy has been asked by the State Director of Education to assist the State School for the Blind in remodeling the dormitories of that institution.

In the Reference Division, under the direction of Mary R. Lingenfelter, techniques for the preparation of complete bibliographies in selected fields is under way, in line with the policy of the Bureau in preparing each year a few thorough bibliographies in selected areas. The Reference Division has accessioned 4,081 titles and has prepared 25,781 cards for the catalog file. Forty requests for major bibliographies were received, and the filling of these involved a total of 1,431 entries. Of the forty bibliographies, 26 originated in Ohio and 14 outside the state. The outside states served were Colorado, Indiana, Kentucky, Michigan, Missouri, Montana, Oregon, and Pennsylvania. One request was received from France. Numerous other minor requests were received by mail but were not tabulated.

During the present year the book exhibit, which is made at the Ohio State Educational Conference each year by the Reference Division, was unusually successful. Books to the number of 552 were received from publishers who each year bring their exhibits of current elementary and high-school textbooks up to date. A new and popular feature added this year was the collection of books in the list of the sixty best educational books for the year. Four of these were written by authors on the staff of the College of Education. Periodicals to the number of 413 are received in the library by gift and through exchange with the journals, without cost to the University. The open hours of the library were increased during the year from 8:00 to 12:00 and 1:30 to 5:00, to the hours of 8:00 to 5:00 and 6:30 to 9:30.

In the Editorial Division, Josephine MacLatchy has continued her two first-grade projects.

During the year the issuance of the *Educational Research Bulletin* has been continued. Nineteen hundred pages of copy were edited, 1,240 pages of galley proof, and 652 pages of page proof were cared for in eighteen issues. Four special numbers were issued: the announcement of the Ohio State University Summer Quarter, the program of the Tenth Annual Ohio State Educational Conference, recent activities of the Ohio State Department of Education, and a special number of the Dean of Women. The extraordinary number of 286 books were reviewed. The *Bulletin* has an exchange list of 250 magazines, which includes nearly all of the important magazines in the field of education. During the year the format of the *Bulletin* was changed. Six

thousand copies of the *Bulletin* are printed for distribution, and letters of appreciation concerning it are received almost daily in the mails.

The *Journal of Higher Education*, also published through the Editorial Division, is a new venture in the field of higher education. It is underwritten by the Ohio State University. In addition to the editor, the assistant editors, the business manager and three other members of the staff of the University, twenty-five outstanding men interested in the field of instruction in higher education and connected with other universities cooperate as associate editors. The subscription list of the *Journal* is growing. The editorial duties are performed by the Bureau, and the financial activities are cared for by the University Press. It is expected that in due time the *Journal* will become approximately self-supporting.

In the field of achievement tests, R. W. Tyler has been working steadily upon the problem of preparing achievement tests so objective that the subjective judgment of instructors will be reduced to a minimum, to the end that the tests from year to year will vary so little in difficulty that it will be possible to measure the influence of new methods of instruction and new conditions for work in the University. The departments which are at present most interested in this field are Botany, Zoology, Home Economics, and Farm Crops.

The members of the secretarial force of the Bureau are making a number of studies of the duties which they perform. A committee, guided by W. H. Cowley, has prepared a *Bureau Office Manual*, which describes in detail the method of performing the duties in each of the units of the Bureau. This study is made to provide successors of the present employees with information that will help them in learning their new duties promptly. It prevents the loss of good techniques and permits superior methods to be transferred from one unit to another. It also enables the secretarial staff to study the techniques they use and to improve them from time to time. It makes more uniform procedures connected with common activities carried on in the different units, and helps to prevent overlapping of duties and a consequent waste of time and effort.

During the year two research assistants were added to the personnel of the Bureau, making a total of five. These young men are able to carry a full three-quarter load in four quarters, and in return give assistance to the Bureau in research projects for the remainder of their time.

The members of the staff have during the year delivered 32 addresses within the state of Ohio and 16 outside of the state. They have produced two books, 38 articles, 19 editorials, and 57 book reviews. The Editorial Division has edited the *Proceedings of the Annual Meeting of the International Kindergarten Union*, the *Proceedings of the Tenth Annual Ohio State Educational Conference*, and has prepared a large number of unsigned book and pamphlet reviews. Other articles have been accepted by magazines during the year but have not yet appeared in print. These publications are found in approximately eighteen of the leading national magazines.

Members of the staff serve on forty-one committees on the campus and in the state, and on seventeen committees in national organizations.

In closing, the Director wishes to express his deep appreciation for the cooperation that has been extended to the Bureau by the Dean of the College, the President of the University, and a very large number of members of the staff of the University.



## DEPARTMENT OF PSYCHOLOGY

## SERVICES TO STUDENTS OR FACULTY

*Probation 400.* The department contributes a very considerable amount of service to students or other persons connected with the University. The recently inaugurated course for probation students is one of the most important and extensive projects of this type. There were 302 students in the course. Each student was given at least three personal interviews; many were sent to the Medical Service for diagnosis and treatment. Adjustments of one kind or another had to be made for approximately 70 per cent of these students. All of them were given special training and drill in relation to their weaknesses. There were eight sections of this class, of approximately 25 students each. Complete records were kept on each student and a very large amount of individual attention and assistance provided. This service is directed by Dr. L. C. Pressey.

*Remedial Reading Project.*—During the Fall Quarter about two hundred students reported three times a week for drill in reading. These handicapped students were located during Freshman Week. The majority of these students finished the drill. The work done by these students was compared with work done by other students of the same initial intelligence and reading scores but without training. It appeared at once that the work in reading was of very considerable value to the students. This project involved keeping the room where the drill was given open for nineteen hours a week, and the keeping of individual records on each student as to how long he required for each project and how many times he attempted each reading test before passing it. Each student was required to complete fourteen projects and to pass a satisfactory examination on each one. As a result of this careful record keeping, we have a complete picture of each student's experiences in the course. This service also is in charge of Dr. L. C. Pressey.

*Problem Students (Mental Hygiene).*—The department is giving clinical advice and remedial work to students who have problems of mental adjustment. This involves extensive interviews and some clinical examination. Drs. Goddard and Maxfield devote much time to this student consultation. Scarcely a day passes without one or more students coming in for such consultation. They estimate that they each devote something like three hundred hours a year to this service. In addition we have Dr. Stogdill putting in practically full time at such consultation service for women students. This involves not merely office consultation but going to homes and studying the student's whole régime and environment. Many students are sent in by the Dean of Women or other campus agencies, and many come of their own accord. Dr. Durea contributes to a similar service for the men. Other members of the staff encounter occasional problem students and either give advice or refer them.

Dr. Durea likewise puts in approximately half his time collaborating with Junior Dean Morrill in interviewing students in the College of Education. He has interviewed between two and three hundred students this year.

*Freshman Week.*—The following members of the staff served as leaders of sections during Freshman Week: Rogers, Stogdill, Williams, Maxfield, Burt. The tests of previous preparation were developed by a committee under the chairmanship of L. C. Pressey, and many of our instructors participated in the giving of these tests.

*Intelligence Tests.*—Drs. Toops and Edgerton supervise the testing of all newly entering students. In addition they retested all the lowest 25 per cent in the colleges of Commerce and Agriculture. Likewise in the College of Education all applicants failing the first test were retested.

*Research Advice.*—Many persons on the campus come to Dr. Toops for advice on research problems. This practically amounts to a statistical consultation service.

The departments or agencies that have received such advice are the following: Bureau of Appointments, Department of School Administration, State Department of Education (Visual Education), State Department of Finance, Physical Education Department, Bureau of Educational Research, Farm Crops, Sociology, Rural Economics, Commerce College Junior Dean, Physiology, College of Medicine, Entrance Board, College of Agriculture Junior Dean, Bureau of Appointments, Bureau of Business Research, Dean of Women.

#### SERVICE TO PERSONS OUTSIDE UNIVERSITY

*Clinic.*—The facilities of the Psychological Clinic are available to the citizens of Ohio. Problem children are brought in from all over the state, although the majority are local. In addition we serve many adults in the analysis of either vocational or emotional problems. This work is administered by Dr. Goddard, Dr. Maxfield, Dr. Durea, and Dr. Stogdill.

During the Spring Quarter Dr. Maxfield organized a child guidance and educational adjustment service for the Westchester County Children's Association at North Tarrytown, N. Y.

*Juvenile Court.*—In the same quarter, cooperating with the Bureau of Juvenile Research, an arrangement was made to have two graduate students act as psycho-clinicians in connection with the Juvenile Court of Franklin County, each giving a half day to this service.

*Test Surveys.*—A survey of the Dayton Public School from grade one through six, with mental and educational tests, was conducted by Dr. L. C. Pressey.

*Industrial.*—Some service is being rendered to concerns in the vicinity along the lines of industrial psychology. The Bell Telephone Company is being assisted in perfection of tests in the selection of their clerical workers and also of their public-relations employees. The Maramor has received some assistance with reference to the selection of some of their employees. The Dayton Power and Light Co. has brought in quite a number of their drivers who are prone to accidents for analysis in our laboratory.

#### ADVISING DEPARTMENTS OF PSYCHOLOGY IN OHIO COLLEGES

Following a report on the status of psychology in Ohio colleges presented at the psychology section meeting of the Ohio College Association, Dr. Dockeray was elected adviser and requested to investigate conditions and assist individual departments in the matter of preparing their programs with the end in view of placing psychology on a better basis so far as laboratory equipment, books, journals, and teaching are concerned.

*Research Advice.*—Among the outside agencies to which such advice has been given by Dr. Toops are the following: National Y. M. C. A., Wittenberg College, Western Reserve University, University of Nebraska, Ashland College, College of Wooster, West Virginia State College for Negroes, University of



Wisconsin, Oklahoma Agricultural and Mechanical College, Wellesley College, University of Pittsburgh, Harvard University, Bluffton College, Salem College.

#### COOPERATIVE RESEARCH PROJECTS

*Highway Safety.*—We are in the midst of a comprehensive program dealing with the problem of highway safety. This problem is partially backed by an appropriation from the National Research Council. We have analyzed causes of accidents rather elaborately and have consulted traffic codes from all parts of the country to determine the most important factors in safe automotive driving. On the basis of this we have built up a comprehensive rating scheme which we use while riding with the driver, and observing his reactions at various times and under various specified situations. We hope in this way to determine which are the most significant items for a driving test or for licensing the drivers. We are supplementing this with laboratory studies of individuals who have or have not had accidents, including students, commercial drivers, and cases sentenced by the traffic court. We are studying various aspects of coordination, reaction time, judgment of distance, and the like, with a view to setting up laboratory procedures for selecting drivers if such a technique should be desired. Our future plans involve the construction of a driving-test field, with standardized hazards and automobiles equipped with various devices to record the reactions of the driver at various positions. This is a research program that will necessitate several years for its completion. It is under the direction of Drs. Weiss, Burt, and Lauer.

*Infant Behavior.*—We are in the midst of a comprehensive investigation of the behavior of infants, beginning with the first day of life. They are observed under controlled conditions with various sensory stimuli applied. At present we are concentrating on the sucking reaction with a manometric technique. The next step will involve the vocalizing reactions. This research is under the direction of Dr. Weiss and is in cooperation with the Medical College.

*Influence of Motion Pictures on Children's Sleep.*—This work is being carried on at the Ohio State Bureau of Juvenile Research and is devoted to the study of the influence of viewing motion pictures on certain phases of children's mental and physical health. Our first research venture is the determination of the extent to which children's sleep is affected by the viewing of exciting types of films in the evening prior to retiring. At the Bureau of Juvenile Research we are operating 20 experimental beds, and to date we have secured records on 70 children, each of whom has spent 50 nights in one of the experimental beds. The evenings preceding those nights included some 1,400 child-attendances at the movies. We are making a minute-by-minute analysis of the 31,500 hours of sleep, comparing the normal sleep of these children, under carefully controlled conditions, with that which is had following the viewing of a motion picture. This experiment represents not only the most extensive single investigation of the normal habits of children from 6 to 16 years of age that has ever been reported, but is also the first study in which the sleep technique has been used as a means of determining the variable influence of different types of moving pictures. This project is under the direction of Dr. Renshaw.

*Value of Preparation Tests.*—During Freshman Week five preparation tests were given. In cooperation with the departments involved, these tests are being compared with University grades in language, history, and chemistry.

Fairly high correlations are being obtained in the light of this information. The five tests are now being revised. The project is under the direction of Dr. L. C. Pressey.

*Measurement of Personality Traits by Means of the X-O Tests.*—Data are being gathered by investigators in Australia, Poland, France, Spain, Canada, and England, as well as by workers in this country, both in the public schools and in institutions for delinquents. Comparisons of attitudes as based upon this testing instrument in different countries and different groups may be made. Dr. S. L. Pressey is directing the research.

*University Intelligence Test Research.*—The Ohio College Association Committee on Intelligence Tests for Entrance, under the chairmanship of Dr. Toops, has accomplished the following:

1. A survey by Ohio State University intelligence tests and a 103-question questionnaire of 40,000 high-school seniors of Ohio. (The analysis of this will result in a book.)
2. Integrated the interest of the State Department of Education and several departments of the University for procuring a complete Hollerith machine equipment on the campus.
3. In cooperation with Drs. Maurice J. Neuberg and W. H. Stone, prepared a "Guidance Manual for Ohio Schools," which is to be issued shortly.
4. Collected material for a composite catalog of Ohio colleges. (Now being collated by Mr. Edgerton.)
5. Collected data bearing on the demand for a summer institute in higher education, which it is proposed to hold next August.
6. In cooperation with Thirl E. Newland, collected over 12,000 titles on higher education, to be published shortly.
7. Issued 23 Ohio College Association bulletins, bringing the number issued up to 79.
8. Furnished tests for state-wide surveys of high-school seniors in the states of Utah, Wisconsin, Wyoming, and Ohio.
9. Cooperated with Dr. Osburn of the State Department of Education in formulating a questionnaire and Hollerith card for a functional analytical report on the 40,000 teachers, supervisors, and administrators of Ohio schools.
10. Cooperated with Dr. Wood of the State Department of Education in formulating plans for analyzing the state scholarship contests by Hollerith methods.
11. Formulated a five-year 200-project research program for the Ohio College Association. (Ohio College Association Bulletin 61.)

#### INDIVIDUAL RESEARCH PROJECTS

With the number of graduate students pursuing research, it is obvious that most of the ranking members of the staff must devote their time to supervising these students rather than pursuing their own research interests. However, some of them are engaged in research projects which are essentially individual and these are listed in the present section.

##### S. L. Pressey:

Development of a test-scoring machine, which will automatically tabulate by item. It is expected that this device will be ready for use some time this quarter.

Improvement of the automatic test-and-drill apparatus mentioned below. Investigation of the reliability and validity of oral examinations and comprehensive written examinations of the essay type, with especial reference to possible use of comprehensive examinations in connection with honors programs.



## H. E. Burtt:

Working on manuscript of book on *Criminal and Legal Psychology*. The first draft has been completed, and it will be revised in final form the coming summer.

A study of the effect of the form of question in testimony upon suggestibility.

Devising a measurement of recklessness by means of an electric maze with pathways of varying length and width.

Psychological analysis of members of the fencing and polo teams, with particular reference to reaction time, coordination, and recklessness.

Perfecting a device for continuous choice reaction measurement and correlating it with ordinary choice reactions as measured with a chronoscope.

## L. C. Pressey:

Development of a test in historical vocabulary. This test at present contains about 300 items. This work is being done to see in what grades one may expect certain vocabulary to be mastered, so that writers of textbooks may avoid such vocabulary as is too difficult for the grades in which the texts will be used.

Development of practice exercises in writing. These exercises are based on an elaborate analysis completed about two years ago, as to the specific faults in handwriting which interfere with legibility. There will be several hundred exercises coordinated in a series of ten each.

Prognosis of success and failure in college. Those freshmen who attended all the projects of Freshman Week took five tests. The percentiles for these five tests were averaged for all freshmen whose records were completed. Those with an average percentile of 20 or less were selected as a group for whom college success was unlikely. These two groups are being followed through their entire freshman year to determine the extent to which this prognosis was reliable.

## Samuel Renshaw:

Studies on Learning. Motion-picture analysis of the stages of practice in the acquisition of skill in operating the pursuit meter has been made. To date results have been secured by this technique which give promise of our being able to extend Coghill's theory of the individuation of reflex movements to adult human learning.

The development of a new universal strobilion. This is an instrument for investigating the several different aspects of seen movement and should prove a valuable device for demonstration and research upon this problem.

## F. C. Dockeray:

Previous investigations on attention and distraction are being extended to a study of the effects of noise. This work is sponsored by the "committee on noise" of the National Safety Council.

## H. A. Toops:

Evaluation of the Study Performance Test (With H. A. Edgerton).—A summary of the first ten years of intelligence testing at Ohio State University (monograph to be finished this spring).

A formula for transmuting high-school marks for comparability for entrance purposes.

A formula for the validity of test items.

The Combined Effect of Difficulty and Intelligence on College Scholarship.

A textbook in statistics, *Computational Statistics*, to be published by the World Book Company, summer of 1930.

Generalized regression equations.

A scale for predicting family income.

A new type of statistics, based on functions of literal frequencies.

## E. N. Maxfield:

Comparison of ratings of parents and teachers on the Iowa Introversion-Extroversion Scale (Marston) in the case of children of pre-school age. During the present year four nursery schools are cooperating.

The development of a picture completion test for children of pre-school age. This is in conjunction with the above.

A scale for the scientific evaluation of school progress as a clinical datum.

A study of the value of having parents present more frequently during test procedures than is done in most clinics.

The Psychological Clinic is in itself a major project in research in that as case studies are developed they become a basis for a number of types of research. We are getting, for example, continuing studies on a large number of cases returned for re-examination at intervals of about a year.

R. D. Williams:

Working on a book on the History of Psychology, and a book on Genetic Psychology.

Collaborating in the preparation of a volume dealing with the general theme *Principles of Science Applicable in the Field of Psychology*. This last book is to be an exposition, quantitative so far as possible, of the most pervasive principles of physics, of chemistry, of biology, and of psychology.

W. L. Valentine:

Preparation for publication of data on *The Learning Curve Equation*.

M. A. Durea:

An experimental study of the wish in children.

A study of muscular coordination and learning in pre-school children.

Some general studies in personality, its defects, functions, and genesis—with special relation to mental health.

A psychological interpretation of prejudice.

#### RESEARCH IN COLLABORATION WITH ADVANCED STUDENTS

In the following section no distinction is made between projects in which the professor actively collaborates in the research and those in which he merely supervises. Practice varies with the problem and the professor.

S. L. Pressey:

E. R. Henry. Development of an objective comprehensive examination in education psychology for use with graduate students and advanced undergraduates.

C. H. Smeltzer. Development of an objective diagnostic procedure for teaching of elementary educational psychology.

Lyle Addie. Reliability and validity of results yielded by automatic testing and comprehensive permanence of learning carried on by machine drill.

T. E. Newland. The specific illegibilities of handwriting at different age levels and the elimination and prevention of such illegibilities.

W. M. Thompson. An attempt at objective appraisal of results of an experimental Dalton Plan school.

H. E. Barker. The determination of technical vocabulary in general science.

W. W. Moore. Technical vocabulary tests in secondary school mathematics.

J. S. Seaton. Problems of learning in English composition.

R. V. Johnson. Location and measurement of difficulties in language study.

A. R. Eikenberry. An experiment in the teaching of educational psychology.

H. E. Burtt:

H. V. Gaskill. The objective measurement of emotional states, with especial reference to crime detection and allied problems.

J. G. Ross. The effect of oratorical versus conversational types of public speaking upon the listener.

J. C. Ringwald. Psychological study of poster board advertising.

R. H. Sipple. A criterion for safe automotive driving.

R. E. Dunnick. Continuous versus simple reaction time.

T. W. Forbes. Judgment of distance and velocities with reference to automotive driving.



- G. Yang. A historical survey of applied psychology.  
 R. H. Goldstein. A correspondence between different types of pursuit meter reaction.  
 Leftwich. Individual tempos.  
 H. L. Chu. The comparative merits of flats and standards in advertising.  
 M. Edwards. Study of socially incompetent women.  
 E. Evans. Tests of social intelligence.  
 S. Haven. Psychological factors in hotel personnel.  
 H. A. Copeland. Variations of the association reaction technique.

*L. C. Pressey:*

- E. Barnes. A study of 125 girls who are working their way through college by doing housework for room and board.  
 H. Behrens. A critical study of the value of the remedial reading project.  
 B. Tomlinson. Prognosis of success and failure in college.  
 M. Hamlin. An individual study of students whose test scores at entrance show marked irregularity.  
 M. Ossing. A study of the comparative standing of freshmen and upper-classmen of the same intelligence in the same course with the same instructor.

*H. A. Toops:*

- C. W. Hall. Factors associated with college opportunity in Ohio.  
 J. C. Kurtz. Scholarship in its relation to activities, attitudes, and prejudices.  
 J. Lilliedale. A follow-up study of Education freshmen.  
 L. A. Meyer. The excellence of items in relation to the validity of a test.  
 J. C. Newlin. Family attitudes and finances as factors in college attendance and success.  
 A. L. Ridenour. Difficulty of curriculum as a factor in college success.

*R. D. Williams:*

- J. Cohen. Some implications of the notion of physiological gradients for psychological theory.  
 R. Whisler. Augmentation and control of the post-contraction reflex.  
 E. Alkire. Genetic study of vision by means of photo-electric effects of excised eyes.  
 L. Staley. Measurements of bodily activity.  
 J. Wenrick. Genetic study of language and of the action of the voice box.  
 W. McCoy. Influence of light of definite wave-lengths on the activity of white rats.  
 M. Miller, M. Edam, H. Hanson, and K. Wilson. Development of a universal maze for the study of the behavior of ants.  
 G. Edam. Photo-electric effects of excised eyes.

*W. L. Valentine:*

- E. Hyde. A genetic study of lectometer performance.  
 F. Cameron. A motion-picture study of infant behavior as adapted to elementary instruction.  
 S. Schwartz. Pursuit learning: distribution of practices.  
 H. Turkel. Elementary laboratory instrumentation.  
 J. Mardis. The development of Henderson's Probograph into a demonstration apparatus for elementary sections.  
 R. Richey. A genetic study of the Yerkes multiple-choice problem.

*S. Renshaw:*

- F. Lumley. New apparatus, methods, and studies on certain complex forms of learning of the insight type by the multiple-choice method.  
 H. F. Schick. An investigation of the learning of bimanual rhythms and its bearing on piano technique.  
 R. F. Wallace. Studies on visual movement.  
 W. W. Webb. A comparison of massed vs. distributed practice in learning the pursuit-meter operation.  
 M. Troyer. Determination of the extent to which learning the pursuit motor can be foreshortened by various tuitional methods.

E. M. Stubbs. Influence of flexor contractions in homologous muscle groups on the constancy of electro-tetanus in flexor digitorum communis profundis.

*F. N. Maxfield:*

S. Mathews. The attitudes of children toward the full-time employment of their mothers.

D. L. Arnold. Elements other than intelligence in the success of high-school seniors.

M. N. Ramsey. Possibility of increasing auditory memory span for digits by training.

M. Rietz. The ratings of parents vs. those of teachers of pupils of school age on the Marston Scale.

A. Baer. Maladjustments of high-school girls.

*A. Sophie Rogers:*

R. Nottingham. Classification and organization of all organic changes studied with reference to emotion.

*M. A. Durea:*

P. O. Wagner. Devising clinical methods for failing students.

W. A. Whitcomb. Etiological factors in delinquency.

D. Pollock. Natural and developmental phases of the pre-school child.

*F. C. Dockeray:*

A. L. Henderson. The problograph applied to problems of learning.

#### NEW INSTRUMENTS OR TECHNIQUES

The following section lists contributions of members of the staff in the way of new instruments or new techniques. These are either perfected or sufficiently well along so it is certain that they will be completed in the near future.

Synchronous interval timer (Renshaw).

Universal strobilation for illusions of motion (Renshaw).

A continuous choice reaction apparatus for giving serial reaction (Burt).

An electric maze for measuring recklessness (Burt).

An apparatus for judging distance and velocity, particularly as involved in traffic. This will give an illusion of oncoming traffic and make it possible to record the subject's reactions in much the same way they would take place on the highway (Burt-Forbes).

A device recording head movements of a person while driving or riding in an automobile (Burt-Ringwald).

Automatic test and drill service; U. S. patents, 1,670,480, 1,749,266 (S. L. Pressey).

Automatic test and scoring device for tabulation of number of correct responses by item as well as by total score (S. L. Pressey).

A 103-question questionnaire, administered to 40,000 high-school seniors (Toops).

A method of cumulatively punching trait-cards to yield  $\Sigma XY$  and other valuable constants, through a single addition in correlation-solving operations (Toops).

Tachistoscope for research and general laboratory use, providing control of fixation, illumination, and exposure time (Dockeray).

A modification of the Healy-Pintner Mare and Foal test in which the picture is omitted leaving a form board with seven irregular insets (Maxfield).

The problograph type of demonstration apparatus for large groups (Henderson-Mardis).

A more compact Yerkes-Bridges multiple-choice apparatus (Valentine-Beasley).

New technique with spectrometer and the quadrant-electrometer in a totally new combination for the study of vision (Williams-Alkire).

Multiple activity cage for the study of the behavior of rats under different lights (Williams-McCoy).



## PUBLICATIONS

H. A. Toops: *Away with High-School Points and Credits*, School Executives Magazine, Sept. 1929, pp. 8-10, 50-54; *Minnesota Mechanical Ability Tests* (with Paterson, Elliot, Anderson, and Heidbreder), University of Minnesota Press, 1930; *Academic Progress* (with H. A. Edgerton), Ohio State University Press, 1929, 150 pp.; *A Suggested Program of Pre-college Guidance for High Schools* (with H. W. Nisonger and J. L. Morrill), Ohio State University Press, 1929, 35 pp.; Editor of and contributor to *Ohio College Association Bulletin Research Reports*, of which 79 have been issued; Report No. 7—*Intelligence Tests for Entrance, Transactions of the Ohio College Association*, 1929; pp. 61-68; *Studying the College Student*, the Survey Magazine, Vol. 62, No. 4 (May, 1929), pp. 247-48; *The Meaning of Scientific Inquiry in Education*, National Society of College Teachers of Education, Eighteenth Yearbook, 1930, pp. 1-18; *A Selected Bibliography on Quantitative Measurement in Higher Education* (with T. E. Newland), Eighteenth Yearbook, National Association of College Teachers of Education, 1930, pp. 190-231.

S. Renshaw: *The Errors of Cutaneous Localization and the Effects of Practice on the Localizing Movement in Children and Adults*, Journal of General Psychology, July, 1930; *A Laboratory Manual of Experimental Psychology*, mimeographed, 150 pp.; Abstracts of all articles in the Journal of Experimental Psychology during the year for Psychological Abstracts; *A Triple-Duty Single Magnetic Marker*, American Journal of Psychology, Vol. 41, 1929, pp. 649-50.

H. E. Burt: *Psychology and Industrial Efficiency*, New York, Appleton, 1929, 395 pp.; Abstracts of Occupational Therapy and Rehabilitation and Personnel Journal, for Psychological Abstracts.

S. L. Pressey: *The Reliability and Validity of Oral Examinations* (with Elinor J. Barnes), School and Society, Vol. 30, (1929), pp. 719-22; *Training College Students to Read* (with L. C. Pressey), Journal of Educational Research, Vol. 21 (1930), pp. 203-11; *The Needs of College Students in Language* (with L. C. Pressey), Modern Language Journal (1930); *Revision of Introduction to the Use of Standard Tests*, World Book Company, Yonkers, New York, 1930, 263 pp.

L. C. Pressey: *Preparation of College Freshmen*, Journal of Higher Education, Vol. 1 (1930), pp. 149-53; *The Needs of College Freshmen in Mathematics*, School Science and Mathematics, Vol. 30 (1930), pp. 238-43; *The Needs of College Freshmen in Reading*, Journal of Higher Education (1930); *The Needs of College Freshmen in History*, Historical Outlook (1930); *The Needs of College Freshmen in English*, English Journal (1930); *A Chapter on Remedial Work at the College Level in the National Yearbook of College Teachers of Education*.

M. A. Durea: Edited the Proceedings of the Third Conference on Research in Child Development held by the Committee on Child Development of the National Research Council.

F. C. Dockeray: *General Psychology. An Analysis of Human Behavior* (mimeographed) R. G. Adams and Co., 1930, 125 pp.

W. L. Valentine: *A Technique in Maze and Problem Box Construction*, Journal of Comp. Psychology, Vol. 9 (1929), pp. 197-201; *A Graphical Method for Fitting Curves to Learning Data*, Jour. General Psych., April, 1930; *A Laboratory Manual for Psychology* (mimeographed), June, 1929, revised March, 1930. Columbus: R. G. Adams Co., 125 pp.

In addition to the preceding, there have been a number of critical book reviews published as follows: Renshaw, 5; Burt, 6; Dockeray, 4; Maxfield, 3; Valentine, 3.

## PUBLIC LECTURES

The following are some of the lectures given by members of the staff outside of their classroom work, during the past year:

H. A. Toops: *Empirical Psychology and the "General Regression" equation*, 1929, International Congress of Psychology, Yale University; General-



ized Statistics, International Congress of Psychology, Yale University; The Need for Organization in the Attack on the Analysis of Mental Structure, International Congress of Psychology, Yale University; Quantitative Method in Education and its Rôle in Bringing about the New Utopia, Statistics Club, Ohio State University, November 7, 1929; Some Psychological Aspects of Mathematics, Mathematics Club, Central High School, Columbus, November 29, 1929; Causes of College Failure, Assembly, Eastern Kentucky State Teachers' College, Richmond, Ky., November 27, 1929; The Recent Survey of the Ohio College Association, Alpha Psi Delta, Ohio State University, December 5, 1929; The Guidance Program of the Ohio College Association, Dayton Vocational Guidance Association, Jan. 28, 1930; A Proposed Guidance Manual for Ohio Schools, State Guidance Conference, Ohio House of Representatives, January 30; Physical Tests, Miss Clark's class of majors in Physical Education, February 4, 1930; Report of the Committee on Intelligence Tests, Ohio College Association, April 5, 1930; The Possibilities of Statistical Analysis Rendered Possible by Recent Applications of Punched Card and Sorting Equipment, Ohio Academy of Science, Columbus, Ohio, April 18, 1930; An Attempt to Envisage the Guidance Problems of a State, Western Pennsylvania Educational Conference, Pittsburgh, April 12, 1930.

H. E. Burt: Present Trends in Legal Psychology, International Congress of Psychology, Yale University; Flats vs. Standards in Advertising, International Congress of Psychology, Yale University; Psychological Study of Highway Safety, International Congress of Psychology, Yale University; Psychology in Salesmanship, John Hancock Boosters' Club; Psychology in Driving and Flying, Society of Automotive Engineers; Four "Fireside Sessions," Y. M. C. A.

S. L. Pressey: The Reliability and Validity of Oral and Comprehensive Written Examinations, International Congress of Psychology, Yale University; Intensive Study of the Technical Vocabulary Problem, Educational Research Association.

A. Sophie Rogers: Approaches to Problem Girl, Y. W. C. A. group, Pomereene Hall.

L. C. Pressey: Mental and Educational Tests, Franklin County Schoolmasters' Association; Remedial Work with Freshmen, Faculty of Denison University.

F. N. Maxfield: Problems of the Adolescent Age, Wittenberg College; Subjective Judgment and Test Procedure, International Congress of Psychology, New Haven; Habit Training of Children of Pre-School Age, Ohio Welfare Conference, Dayton; Children's Fears and Feelings of Inferiority, Ohio Welfare Conference, Dayton, Ohio; Dishonesty, Lying, Stealing, etc., Ohio Welfare Conference, Dayton, Ohio; Sex Problems in Child Training, Ohio Welfare Conference, Dayton, Ohio; The Problem Parent vs. The Problem Child, Ohio Welfare Conference, Dayton, Ohio; Behavior Problems in the High School, Kappa Delta Pi, Ohio Wesleyan University; The Alumni and the University, Alumni Banquet, New Lexington; Social Responsibility, University Women's Club. Special Education, Miami University; Spiritual Values, Congregational Fellowship House. Demonstration of Testing Methods, Grandview Community Pre-School; Methods of Testing, Interpretation of Results, Mental Hygiene Problems, etc., Nursery School; Behavior Problems of Normal Children, Monday Club, Circleville; Parenthood as a Professional Job, American Association of University Women, Richmond, Indiana; Problems of Mental Hygiene in the Public School, Washington Irving High School, Tarrytown, N. Y.; Behavior Problems in Normal Children, Westchester County Ethics Study Group, New Rochelle, N. Y.; The Picture Element in the Healy-Pintner Mare and Foal Test, New York Society of Consulting Psychologists; The Picture Element in the Healy-Pintner Mare and Foal Test, Psychology Section of Ohio Academy of Science.

M. A. Durea: New Tendencies in Social Psychology; The Rôle of Psychology in Relation to the Maladjusted Student, Psychology Section of the Ohio College Association.

F. C. Dockeray: The Small College Library of Psychology, Ohio College Association, Columbus.



W. L. Valentine: Construction and Demonstration of the Lectometer, International Congress of Psychology, Yale University.

R. D. Williams: The Application of the Principles of Psychology to Business (several lectures) Huntington, West Virginia.

### DEPARTMENT OF SCHOOL ADMINISTRATION

The usual statistical data concerning class enrollment, teaching load, etc., are eliminated from this report, inasmuch as these data are now being collected and distributed by the Statistical Office of the Central Administration.

*Additions to Staff.*—The Department had the same staff during 1929-30 as during the previous year. We have been somewhat hampered in the past year by our failure to secure the right man for the new position allowed in 1929. We had originally hoped to secure Dean Neale of the College of Education, University of Missouri. Being disappointed in this, the department arranged to continue its courses by the temporary appointment of Dr. Williams and the utilization of Doctors Heck and Reeder during the Autumn Quarter of 1929.

We are happy to report that Dr. A. J. Klein, Specialist in Higher Education, of the United States Bureau of Education, will be a member of the staff beginning July 1, 1930.

*Off-Campus Activities of Staff.*—By its very nature, the staff of the Department of School Administration is frequently called upon to render services outside the University in the State of Ohio and occasionally nationally. These activities seem to be increasing rather than diminishing.

Dr. Eikenberry is devoting a full quarter to serving the Ohio State Department of Education in the promotion of pupil personnel guidance in the colleges and secondary schools of the state. He will supervise and direct the activities in this field for the State Department for a period of three months and perhaps continue to direct the same in an advisory capacity thereafter. This brings him in frequent and close contact with nearly all of the high-school principals and city and county superintendents of the state. This service alone is of incalculable value both as an expression of the good will and the leadership of the University and also for its value in stimulating and creating better educational instruction and leadership. Dr. Eikenberry has also under his direction 3 candidates for the doctor's degree, 19 candidates for the master's degree, and 5 ad interim projects. Much of this work is extra and involves the expenditure of a large number of hours during the course of a year, many of which do not appear in formal service reports.

Dr. Davis, who is employed half time, has proven so invaluable to the State Department of Education that they demand two-thirds of his time rather than half. He is auditor of the State Department of Education, and in that capacity is in intimate contact with school officials connected with over 800 of the 2,400 school districts of the state. As auditor he must pass on the manner of distributing \$4,800,000 of state aid funds. The plans for the distribution of this sum were entirely Dr. Davis' responsibility. He has in the course of the last year personally met and worked with over 2,500 school-board members. This program is of immense value to the University, both directly and indirectly. He is directing a re-formulization of both the educational and financial programs of Wilberforce University. He is also auditor for the additional funds passing through the State Department of Education for special education, amounting to over \$440,000. I do not hesitate to say that Dr. Davis is chiefly responsible for the splendid manner in which the finances of the State Department of Education are now being administered.

He has promoted the organization of the Ohio State Association of Business Officials of cities and exempted villages representing 140 districts. He has been elected, at a recent meeting, secretary of this association. He has



under his direction one candidate for the Ph.D. degree and is assisting in the direction of seven candidates for the Master's degree. This number is rapidly increasing.

Dr. Heck is chairman of a committee doing research with reference to the enforcement of the compulsory school attendance law in Ohio. He is making a critical study of the operation of this law in three cities, Toledo, Youngstown, and Middletown, and ten county school systems, namely, Crawford, Franklin, Hancock, Highland, Medina, Mercer, Morgan, Ottawa, Summit, and Wayne. He is directing this study in cooperation with the Ohio Education Association, State Department of Education, Bureau of Educational Research, the Ohio Institute, and the National Child Labor Committee, which is cooperating and partially financing the project. The entire study is under Dr. Heck's personal direction and involves an expenditure of approximately \$8,000, none of which is from University sources. Dr. Heck's services are voluntary and unpaid.

Dr. Heck has under his direction one candidate for the Ph.D. degree, 24 candidates for the Master's degree, and 19 ad interim projects. He has completed during the year for the United States Bureau of Education the following studies: "The Extent of Special Education in the Public Schools of the United States," (approximately 75 pages); and "A Study of Schools and Classes for Crippled Children" (approximately 120 pages). Both of these studies have been accepted for publication by the U. S. Bureau of Education in forthcoming bulletins.

Dr. McCracken continued during the last year his work with the Presbyterian Board of Higher Education and in that capacity came in contact with the officials of more than 50 different colleges in the United States.

He has directed seven Ph.D. theses during the past year, at least three of which should be completed by the end of the summer of 1930. In addition there are 12 men who are working with him for the degree of M.A. and 8 on ad interim projects. We feel that his relationships off the campus have been very helpful to him personally and to the institution as well. He is a member of the Executive Committee, American Council on Education; a specialist on the Land Grant College Survey; a member of the Committee of Three appointed by the American Medical Association to classify Negro Colleges with reference to admission of their students to medical schools; and a member of the Survey Commission of the Association of American Colleges.

Dr. Lewis continued as a member of the Advisory Committee of the Department of Superintendence of the N. E. A. He has been the University representative on the local committee for the entertainment of the N. E. A. in Columbus, July, 1930. He has lectured to, and advised with, State Teachers Associations in Nebraska, Tennessee, Alabama, and the local organizations in Michigan, Pennsylvania, West Virginia, Kentucky, Indiana, and Florida. He has under his direction three candidates for the Ph.D. degree, 20 for the Master's degree, and five ad interim projects. He is on call constantly by the officials of the Ohio State Department of Education, and is chairman of a newly created committee on personnel guidance. He is in contact with a large number of city and county school systems and acts as an unofficial adviser to many of them. He has collaborated in the writing of a textbook on educational administration which is now in syllabus form. He has during the past year personally interviewed over 300 graduate students with reference to their program of graduate work in this University.

Dr. Osburn spends half-time with the University and half-time with the State Department. He has under his direction one candidate for the Ph.D. degree and six ad interim projects. He is devoting the larger portion of his time and interests to the furtherance of the program of education of the State Department and is of great assistance in the State-Wide High-School Scholarship Contest. He is largely responsible for the preparation of the tests for this contest.

Dr. Reeder has completed, during the last year, three important textbooks and studies. They are as follows: *How to Write a Thesis* (revised edition, 213 pages); *Fundamentals of Public-School Administration* (579 pages); *Business Administration of a School System* (454 pages). He has also under his direction three Ph.D. candidates, 23 candidates for the Master's degree, and eight ad interim projects. He completed the report for the N. E. A. Committee



on Ethics, made in July, 1929. He is an unofficial adviser to the Board of Education at Eaton, Preble County.

Dr. Williams is supervising the preparation of one Master's thesis and three ad interim projects. He served as chairman of a committee named by the State Director of Education to conduct a survey of Wilberforce University, with a view of determining its fitness for recognition in the State Department of Education. He read a paper before the Central Ohio Teacher Training Conference at Ohio Wesleyan University. This paper has been accepted for publication in *Educational Administration and Supervision*. He gave the annual address before Kappa Phi Kappa, the local chapter of a professional educational fraternity, and is invited to give the same address before Phi Delta Kappa at the University of Illinois. During the Winter Quarter he gave a series of twelve lectures before a group of Columbus teachers on the administration of elementary education.

*Ad Interim Services.*—During the last six years, the number of students majoring in School Administration and doing ad interim research has steadily increased. Three years ago the department was so badly understaffed that it became necessary to curtail these activities. We are now in a position to resume them once more in full force. There is a large interest in graduate work among teachers, principals, supervisors, and administrators throughout Ohio and this entire region. The actual amount of ad interim work and off-campus research is not shown by the service reports, as many of these students are under direction during the year although registered for credit one quarter only.

*Extension Service.*—There is a persistent demand for extension service. During the last year requests were received from five different cities in the state. Courses in educational administration are so recent in the offering of colleges and universities, and so limited in most of the colleges of the state, that an unusual field of service through such courses is readily available. The department, in compliance with the regulations of the University has no extension service of any kind except occasional free and paid lectures by individual members of the staff. This is one of the problems of the future. It is frequently discussed in the staff meetings of the department, and I believe the entire staff would not in any way injure the quality of service now rendered on the campus. I am sure that the staff would oppose such service if it in any way affected the quality and quantity of the present service.

*Cooperative Training.*—The department also has under consideration a program of cooperative training of school executives, including elementary, junior, and senior high-school principals, supervisors, superintendents, and research workers. Certain city officials have expressed a willingness to cooperate on plans similar to that in operation in the training of engineers in the University of Cincinnati. This matter is being worked out and a separate report will be submitted later.

*Emphasis upon graduate work.*—The Department of School Administration is primarily a graduate department and one of the largest on the campus, as far as numbers of graduate majors are concerned. In line with this fact, the staff has recommended a great increase in the number of 800 courses and a corresponding decrease in the number of 600 courses. This matter has been approved by the Graduate Council, and the new policy will be inaugurated with the beginning of the Summer Quarter, 1930. A further reduction of 600 courses is contemplated during the coming year.

*Requirements for Graduate Work.*—The staff of the department has given considerable thought to the requirements of graduate work both in School

Administration and in other departments. Through its members, it has cooperated with the committee of the Graduate School in the preparation and presentation of a report. This is a matter that we feel should receive the most thoughtful attention of all parties concerned.

*Areas of Service.*—Educational administration is very comprehensive. It is a form of public, political and social administration. In building up the department, we naturally have to consider the fields of service, on the one hand, and the potential amount of training and number of students for such service, on the other hand. An analysis of the present offering in the Department of School Administration shows the following fairly distinct divisions:

I. Courses primarily for *undergraduates*. Of this number there are only two, namely School Administration 600 and 601.

II. Courses primarily for students contemplating the taking of the *Master of Arts degree*. Of this number there are approximately 20, not more than 15 of which are offered during the academic year. These courses are designed for the preparation of minor specialization in any of the following four fields:

1. Junior and senior high-school principals, vice-principals, heads of departments, and supervisors.
2. Elementary-school principals and supervisors.
3. Small city school superintendents, assistant superintendents, and general administrative officers and supervisors.
4. County, village, and rural superintendents and supervisors.

For the accomplishments of these purposes we are at present fairly well staffed with the exception of emphasis upon rural education. Dr. McCracken has up to this time been interested in this field, but his present interest lies in higher education. In case he goes over to higher education, we are debating what should be done to strengthen our staff in state and rural educational administration. The other fields are fairly well staffed.

III. Courses primarily for *advanced graduate students*, candidates for the Ph.D. degree. For this purpose the Department offers beginning July 1, 24 courses, about one-third of which are offered only in the Summer Quarter. It is upon this area of service that the department, through its staff meetings, is concentrating its attention during the coming year.

*Space Requirements.*—During the year a report was made covering the space requirements needed by the Department of School Administration. This report showed that the space allowed the department was now about 1,108 square feet. An estimate of our needs was approximately 5,000 square feet. Details covering this need are not repeated here, but our immediate needs for next year are imperative. We trust some method will be devised providing at least 1,500 square feet additional floor space that will be available to the department not later than October 1, 1930. Rooms 209, 105, and 211 are very badly congested and overcrowded, and no seminar room facilities are available for the large number of graduate students pursuing research work.

*Library.*—The department has asked for an appropriation of \$3,000 annually for library facilities to be made available through the College of Education Library. It has been granted \$350. Educational administration is so new a field and the number of majors in educational administration is so large, that the graduate work of the department is considerably hampered by the meager library appropriation. For example, at present Mr. Lewis is contributing not less than \$100 a year from various sources to the purchase of



the books which he either loans or gives to the Library, to be used by students in his graduate classes. Dr. Eikenberry has contributed over \$200 from various sources. Drs. Heck, Reeder, Osburn, McCracken, and others have made contributions, and all complain of the inadequacy of the supply of books for graduate instruction. In addition to this need, many fields of graduate research are practically closed to students in the department because the library facilities are too meager. We realize, of course, that the library appropriations of the entire University are limited, but we do not feel that the Department of School Administration has had proper consideration in view of its large graduate registration.

## REPORT OF THE JUNIOR DEAN

J. L. MORRILL

It is to be fairly expected that the service rendered by the Office of the Junior Dean in the College of Education for the second year, just ended and here reported, should show some increments of extension and improvement. Such increments would be of these kinds:

1. An extension of the service in reaching more students, demonstrable statistically
2. An improvement of the service as this attempts, through many channels, to assist the student in the business of learning, in the problem of finding himself and what he might become, in the enrichment and realization of his own individuality
3. An increased effectiveness, through selective and guidance activities, in assisting the College to realize its professional objectives: the better preparation of better teachers for social service in the schools.

There has been, throughout the year, the genuine attempt to keep constantly in mind the latter two objectives, without which the mathematical increase in the number of students contacted would be largely meaningless and unproductive.

As last year, the office has concentrated attention upon the freshmen. Comparative freshman enrollment in the College of Education for the two years (exclusive of the irregular Summer Quarter, during which relatively few first-quarter students are registered and no systematic interviewing is done) is reported by the Registrar as follows:

### FRESHMAN ENROLLMENT

	Autumn	Winter	Spring
1929-30 .....	496	442	358
1928-29 .....	569	466	441

The decline in first-year attendance is evident and may be explained, in part, perhaps, by (1) the growing appreciation throughout the state of the fact that the field of secondary education is overcrowded, and (2) the increase from 10 to 15 percentile as the minimal intelligence level for entrance to teacher-training curricula, imposed by the State Department of Education. A further increase of five percentiles in the minimal requirement, effective next fall, will presumably depress next year's enrollment similarly.

The marked increase in the number of interview contacts which the office has been able this year to accomplish is revealed in the following figures:

	FRESHMEN		SOPHOMORES <sup>1</sup>	TOTAL
	1929-30	1928-29	1929-30	1929-30
Number interviewed .....	516	339	98	614
Men .....	159	109	30	189
Women .....	357	230	68	425
Total number of interviews....	752	531	150	902
Students interviewed only once.	348	165	58	406
Students interviewed twice.....	114	122	30	144
Students interviewed more than twice.....	54	52	9	63

<sup>1</sup> The number of sophomores interviewed last year, which was very small, was not recorded. Practically all sophomore interviews this year were voluntary, the result of the first-year contacts.

That we have been able nearly to double the number of students reached and the number of recorded interviews is a matter of genuine satisfaction to the office—and the Junior Dean here expresses his appreciation to the Dean, to the President, and to Dr. H. H. Goddard for their generous cooperation in making available the half-time service of Dr. Mervin A. Durea as an associate in the office. Of the 516 interviews recorded, Dr. Durea conducted 271, nearly all of which were the time-consuming and vitally important initial interviews with first-year students.

The continuance of Dr. Durea's service in this area is earnestly requested. His friendly and stimulating personality, his sound psychological training, supplemented by wide clinical training and experience in interviewing, have been highly productive and of direct value not only to the students but also to the Junior Dean, who has profited from observation and understanding of Dr. Durea's unique approach to student problems and motivation.

Dr. Durea's philosophy and technique in this area are partly expressed in his own words, as follows:

Since the junior area is not organized specifically for the amelioration of individuals with well-defined behavior problems, but for dealing with students whose behavior is assumed to be normal, I have viewed my rôle as that of harmonizing clinical methods to such demands. Naturally the uncovering of a serious problem now and then is inevitable. Where this has been the case, I have handled the men myself and have made not infrequent use of the services of Dr. Emily L. Stogdill with women subjects.

Reduced to its lowest terms the point of view which I have attempted to develop and which has guided me in all interviews with Freshmen has been that of *preventive mental health*. In the broad sense in which this standpoint has been operative in the junior area, prevention implies the ability of the individual to so organize and integrate his behavior as to escape either distortion of personality or monotony in living.

In other words, my interest has been not so much the solution of present difficulties where these have existed in either major or minor form, although I have attempted to analyze and dissipate these, but to encourage the concept of progressive re-integration with always a better status in the offing.

The practical aspects of preventive mental health have been developed in the interview under four different categories: Growth, enrichment, individualization, social participation.

It is important for the individual to understand that his personality-pattern at any given time is the result of all that has preceded, and that in turn the present stage will give birth to what is to follow. However obscure motivation may have been at the start, once the student grasps the significance



of the point that education and general experience in the University are not a myopic seeking after grades or the achievement of a certain point-hour ratio but the liberalization of intelligence and a growing into the best things of life, his enthusiasm is likely to become inspired rapidly.

One point which has been urged continually in all interviews is that higher education gives access to the best materials that have been given to the race by way of the social inheritance. With this in mind, no pains have been spared to emphasize the fact that curiosity is a fine trait to develop, that a live curiosity will always guarantee lasting flexibility and keep the individual in the rôle of a learner. Enrichment, therefore, becomes a concomitant of continuous learning.

Whatever has been done with the question of individuality has been governed largely by the stated interests of the student. With those who had definite interests, an attempt was made to integrate them better in terms of the social complex. With the few who had no declared interests, positive efforts were made toward guidance. By and large the term "interests" applies to the professional sphere. In this connection the interview was directed toward removing the interests from a utilitarian setting and giving them as much social meaning as possible. In a few instances, especially those students of exceptionally high intelligence, the declared interests extended beyond the professional. Such cases suggested many leads for the encouragement of versatility.

With respect to social participation, it was rather easy to make clear to most students that education is synonymous with personal development, the broadening and faceting of personality as extensively as possible. Every means at hand was used to show that the degree of wholesome-mindedness depends on the extent to which one has increased his powers of participating in a variety of social conditions. Because of the fact that social living is so *real* this probably provided the greatest incentive and was the most tangible of the various approaches used in the interview.

The manner in which I have tried to apply the viewpoint indicated herein is about as follows: every student is viewed as a problem, not in the technical sense of the abnormal and clinical psychologist, but in that traditional training has not done a great deal toward maximal socialization. Therefore, the rôle which I have tried to play is to give these individuals, in a graphic manner and in terms of what can be ascertained about them on the personal side, a philosophy of conduct. That it has been effective, I have no doubt. That these effects are unmeasurable, I am willing to admit. This philosophy of conduct has not been limited to higher education *per se* but has been related to the individual as a social participant.

Improvement of instruction in the junior area, responsibility for research the results of which may be made productive in the treatment of the individual student, attention to remedial procedures for the handicapped and a more intelligent handling of the gifted, relationships with the high schools in a program of pre-college guidance—all these and other activities are properly within the Junior Dean's area of responsibilities.

All of them, however, are responsibilities shared with other University officials and teachers. None of them would seem to compare in importance with the responsibility, expressly assigned to the Junior Dean, for personal and professional contact with the individual student. Here, it would seem evident, are still "the heart and core of the work of the Junior Dean," as emphasized in last year's report. The identity and the individuality of the student are at stake in this emphasis:

*Samuel E.*, percentile 96, inordinately reserved and evidently the victim of an exaggerated inferiority-feeling, is called for interview. He is the son of a Jewish rabbi and has taught Hebrew to younger children in the synagogue. He loves languages but is aware of the prejudices against Jewish teachers in the public schools—and is therefore uncertain as to career, failing to enroll for any foreign language. The student is encouraged to learn of his high percentile, stimulated to know of his distinctive capacity for scholarship.



Interested inquiry into his language-liking reveals a philological bent. He is referred to a faculty member in a foreign-language department for further consultation, and the Junior Dean suggests a heavier than normal schedule during the following quarter, including some foreign languages. The student subsequently scheduled 23 hours, including Latin and Spanish, receiving the grade of "A" in all subjects except Military Science, in which his grade is "B." Later he undertakes German, in addition to Latin and Spanish, continuing with four 5-hour subjects, earning a total point-hour ratio of over 3.5 in four quarters of work. The boy, encouraged by the professor to whom he was referred, is now embarked upon a Ph.D. career in languages and philology. Much of his shyness has been overcome. He has been strengthened by success, is intent upon a goal, reveals a complete transformation from the "forgotten freshman" of the initial interview.

*Caroline B.*, came back to the office a few months after her initial interview, discouraged, asking advice as to whether to withdraw. She had been advised to do so by one instructor who, when consulted by the Junior Dean, stated his belief that any student exhibiting the "atrocious spelling" found in her written work was "evidently not of University caliber." The girl's interest is Physical Education; her percentile, 26; her point-hour ratio, two plus. Her percentile scores in Freshman Week "previous preparation tests" were: English, 55; Mathematics, 77; History, 99. She is the oldest of eight children; a quiet, wholesome, ambitious country girl of substantial and attractive personality, apparently of excellent health and physique. Her "atrocious spelling," upon inspection of some of her written work, revealed such strange peculiarities that she was referred by the Junior Dean to Dr. L. C. Pressey for special diagnosis. For motivational reasons, she was likewise withdrawn at once from the course taught by the instructor who had advised her to leave the University. Dr. Pressey, assisted by Miss Rosebrook of the Psychological Clinic, undertook a program of remedial work in spelling. She was referred to Dr. Oscar G. Russell for a hearing test which revealed not only that her hearing is 20 per cent below normal but also that she is totally deaf to all guttural, high, and sibilant sounds—which would account as once for her aberrations in spelling. The girl will be assigned to Probation 400 in the fall, will take special courses in lip-reading at the School for the Deaf, and the Junior Dean will recommend that she be excused from required work in foreign language. Her achievement during the Spring Quarter was 2.6 upon a schedule of 14 hours.

*Stanley H.*, originally interviewed last year, was, according to his high school record and his percentile of 65, just another "average student," though 26 years old and a former "gob" in the Navy. His first two quarters of University work yielded a point-hour ratio of 3.6, and he was encouraged to schedule extra hours. Since then he has carried 20 to 23 hours each quarter, with a total point-hour ratio of 3.2—including not only difficult scientific courses in the Physical Education major but also extra courses in Philosophy, Fine Arts, History, and Psychology. Interview contacts with this young man have unquestionably (1) stimulated the range and quality of his intellectual curiosity and achievement, (2) revealed to him his own capacity for distinguished performance in an area unsuspected, (3) enabled him to advance his graduation by three or more quarters (an important consideration for one of his age).

There have been here cited typical interview-outcomes in the cases of a gifted, a handicapped, and an apparently average student. The educative possibilities of the interview unfortunately transcend, the writer feels, the techniques for their measurement. A statistical correlation may express, but fails to reveal, the individual differences and the complex agencies of motivation which enter into the "r." For the personnel officer, at least, the work sheets of a correlation-computation are more significant than the end-result, in dealing with the individual student.

As heretofore, the office has continued its policy of "working toward the middle" of the percentile distribution in summoning students for interviews; that is, the students selected for interview are chosen alternately from the



high and low percentile groups, from the very first week. The intelligence classification of those interviewed is expressed in the following table:

PERCENTILES	FRESHMEN		SOPHOMORES	
	Men	Women	Men	Women
96 — 100 .....	8	16	9	6
76 — 95 .....	21	76	8	24
26 — 75 .....	95	223	17	30
6 — 25 .....	34	38	3	8
1 — 5 .....	1	2	..	...

#### THE INTERVIEW SECTION

The "interview section" program, undertaken last year at the suggestion of Dr. W. W. Charters, has been considerably expanded, as revealed in the following summary:

	1929-30	1928-29
Total number of interview sections.....	29	9
Total students in these sections.....	788	297
Education students in these sections.....	358	120
Education freshmen in these sections.....	206	83
Freshmen from other colleges.....	117	75

The courses and departments of the College of Education in which the above interview sections were conducted over the three quarters were: Psychology 401; Psychology 407; Industrial Arts Education 400; Fine Arts 421; Music 476 and 480.

The Junior Dean here expresses to the instructors of these sections, and their department supervisors, a very genuine appreciation of their co-operation. Interview data and judgments for individual students reported by these teachers have been made part of the personnel records of the appropriate junior deans and have again and again proved useful in dealing with the particular students.

The value of the interview section plan is three-fold (1) in the motivational and educative effect upon the student, (2) in yielding additional facts and impressions about the student which may be subsequently utilized by administrative and personnel officers and by other instructors in dealing with the student, and (3) in the very important effect upon the instructor himself—particularly the young instructor—through the reminder that he receives of the varying personalities, background, interests, and capacities of his students, through enlisting his friendly interest in their problems educational and otherwise, and through his first-hand understanding of the necessity of *dealing differently* with the gifted, the average, and the inferior student.

The Junior Council will attempt next year to discover statistically whether the interview section procedure is worth the time and expense involved—through a study of grades earned by students in these sections as compared with those received by students in the regular classes.

Two evaluations of this sort were attempted in the College of Education this year:

1. In Psychology 407, a carefully controlled teaching experiment, conducted under the direction of Dr. S. L. Pressey over three quarters and involving more than 500 students, revealed "a slight difference in favor of the interview sections" as compared with regular classroom procedure, the "test-

teach-test" plan and the "committee" plan of instruction. Funds to conduct this experiment were granted by the President to Dr. Pressey upon request of the Junior Dean.

Dr. Pressey, in a report to the Junior Dean and the President, states that, measured quantitatively, the advantage of the interview section is small, "and when the difference in intelligence is considered, probably not very significant." Citing the fact that 36 per cent of the students in the interview sections stated that they had received assistance on matters of vocational guidance or other personal difficulties as a result of their interviews, Dr. Pressey concludes that "the major contributions of the interviews were in guidance or adjustment rather than subject matter." That this value is not underestimated is revealed in Dr. Pressey's statement that all students in Psychology 407 will be interviewed next year. (Dr. Pressey's interesting experiment, it should be said, extends far beyond the comparison of the interview section with other teaching techniques, which was a minor phase of the undertaking. His report bears upon the whole problem of improved teaching, and will be transmitted separately to the Dean.)

2. In Psychology 401, Mr. David L. Bidwell, one of the most enthusiastic and resourceful of the interview section instructors, made a statistical study of two sections taught by him in the Autumn Quarter, 1929—one, an interview section; the other, a non-interview, control section. Although Mr. Bidwell disclaimed statistical reliability for his results, because only 75 students were thus studied, he found that (1) students in the interview section had an advantage over students in the control section equivalent to about half a letter grade, on the average, and (2) the advantage of the interview section is apparently greater for poor or average students than for good students. He stated his subjective impression that "accompanying the interviewing, there was a marked improvement in the morale of the class."

The potentialities of the interview section in the hands of a skilled and sympathetic instructor are revealed in the following tabulation of "topics discussed in the student interviews," excerpted from a careful report of his work with one section by Mr. B. E. Tomlinson, instructor in Psychology 407:

Avocations .....	4
High-school interests .....	13
College record .....	20
Courses .....	20
Difficulties .....	5
Extracurricular activities .....	11
Family situations .....	21
Major-minor (professional-vocational) .....	22
Physical condition .....	11
Future plans .....	22
Graduate work .....	1
Marriage .....	2
None .....	2
Teaching .....	17
Study methods .....	12
Reading rate and comprehension	
Note-taking	
Time-place study	
Support .....	22
Married .....	1
No self-aid .....	7
Partial self-aid .....	7
Total self-aid .....	7

Mr. Tomlinson's report rightly calls attention to the fact that instructors are not all equally qualified for interviewing, and that there is danger of detrimental advice in the case of some students. "Instructors," he says, "should probably confine their counseling to problems connected with the



course, and leave such problems as personality maladjustment to those more expert and experienced."

The fact remains, however, that the interview section procedure can be extremely valuable in *locating* cases of various maladjustments, deficient motivation, vocational uncertainty or misplacement, and the like—which can then be referred to the proper authorities. It is clear, also, that special training for interview section instructors would be helpful.

The extension of the interview section plan—indeed, its continuance even upon the present scale, in College of Education departments—rests upon the ability and willingness of the University to finance this work. Teaching schedules in Music, Fine Arts, and Psychology, at least, are so heavy that interviewing adds a burden which department heads and supervisors are reluctant to assign. Successive quarters of the past year showed a diminishing number of interview sections in Psychology 401, for example. The Junior Dean feels it both unwise and unfair to "exert pressure" upon instructors to assume interview sections under these conditions. For the interview to become a perfunctory technique is to rob it of its effectiveness. The work is time-consuming, a tax upon energy and enthusiasm. It would seem to deserve financial support and departmental recognition as a function of good teaching.

It is recommended that the Dean urge this support in bugetary requests for the elementary courses in Psychology, Fine Arts, and Music. The work can be carried for the present without additional support in Industrial Arts Education.

#### THE GIFTED STUDENT

The fact that most productive treatment of the gifted student will be accomplished in the classroom is clearly recognized. Although the largest opportunity in this area confronts the teacher, the Junior Dean meantime has sought to serve the individuality of the gifted student in the following ways:

1. The policy of selecting students alternately from the top and the bottom of the percentile distribution insures that all students of exceptionally high intelligence will be summoned very early for interview.

Such students are advised immediately of their high intelligence percentile, informed as to the prognostic significance of their high-school records and scores on previous-preparation tests, and the statistical prospect of superior academic work on their part is explained. They are urged and encouraged to live up academically to these potentialities and are assured by the Junior Dean that curricular deviations, admission to courses normally closed to freshmen, and other special treatment will be given them upon their presentation of logical reasons therefore and the achievement of good scholarship. They are likewise informed of the requirements for election to the honorary scholarship organizations, Phi Eta Sigma, Scholaris, Phi Beta Kappa, and Pi Lambda Theta, and urged to earn recognition by these organizations.

2. Individual letters are written to members of the faculty in many instances concerning gifted students who develop or reveal a special interest in particular subject matter. The object of these letters is to give identity to the student in the professor's mind as a person specially promising, worthy of personal attention and possible enrichment of course content or procedure.

Of 108 letters written to faculty members this year concerning individual students, more than one-half were of this nature.

3. All freshmen who achieve in any quarter a point-hour ratio of 3.00 or above receive letters from the Junior Dean congratulating them upon their performance and suggesting to them the possibility and desirability of carrying extra hours.

During the Autumn Quarter, 29 sophomores and freshmen were permitted to carry schedules ranging from 19 to 23 hours. The median percentile of this group was 86; their median point-hour ratio on the heavier schedules was 2.57.



During the Winter Quarter, an equal number of freshmen and sophomores carried schedules ranging from 19 to 21 hours. The median percentile of this group was 70; their median point-hour ratio was 2.60.

In the entire group of 54, only nine failed to achieve a point-hour ratio of 1.80. Twenty earned point hour ratios above 3.00, of whom 12 scored 3.50 or above.

(Not all the authorizations for extra hours were granted by the Junior Dean. The secretary shares the exercise of this authority.)

It would be unwise to deduce general principles or lay down uniform regulations based upon the figures above. Here again the individual cases are more illuminating than the medians which express them. In the case of the 12 students achieving 3.50 or above, all but two raised their point-hour-ratio in the quarter of the heavier schedule over what they had previously achieved. It should be explained also that not all of the 54 had previously achieved a point-hour ratio of 3.00—some of them having been permitted to carry 19 hours, for special reasons, despite a point-hour ratio lower than even 2.00. The varying difficulty of courses undertaken, shifts in interest and motivation, problems in personal adjustment which sometimes suddenly appear, the notorious unreliability of academic grading—all these and other factors enter into the picture.

4. Based upon individual aims, superior scholarship, and other special reasons, the Junior Dean—with the consent of the professors involved and the requested approval of the Graduate School—has authorized certain underclassmen to register for "600" courses.

Fourteen such underclassmen were authorized this year to enroll in 20 such courses, earning grades as follows: A, 6; B, 4; C, 8; D, 2.

Similarly, 23 students were permitted to register for 34 courses normally closed to freshmen, or for courses for which they lacked the catalog prerequisites, earning grades as follows in these courses: A, 7; B, 11; C, 10; D, 5.

Ideally, the encouragement and granting of deviations from the academic rules should be repaid, on the part of those students favored, by excellent work, evidenced by high grades whereas this does not always occur, as is shown above. One is not able, however, to calculate the ultimate effects in these cases of individualized treatment. Educative enrichment is not uniformly labeled with an "A," and it is frequently forgotten that "scholarship" is, after all, only a fortunate by-product of the state university's service to the social order.

Meantime, opportunity for the gifted student is receiving increasing attention in the junior area of the College of Education:

1. Professor Dockeray and his associates in Elementary Psychology this spring inaugurated, and hope to perfect next fall, a "two-level" plan whereby optional opportunity for more extensive reading and laboratory work is provided for the interested and gifted student.

2. Professor Hopkins reports as follows, concerning the treatment of the gifted student in Fine Arts:

When a student shows an unusual aptitude for work in this department he is advanced as rapidly as his ability warrants. If he is registered in Fine Arts 421, the beginning course, and we find that this work is too elementary for him, he is immediately transferred to the next class 423. Since this transfer cannot be made on the books of the Registrar, the student receives credit for 421, but he is relieved from the requirements for 423 and his next enrollment will be for 424. This has occurred in a number of cases, and we consider it a very satisfactory method.

As soon as a student has demonstrated a sufficient sense of responsibility, we assign for his use at certain hours of the day, a studio where he can work undisturbed. Occasionally a student who develops an intense curiosity in regard to some phase of painting is permitted to work for a short time in the painting classes. We find this to be a great stimulus as the student quickly realizes the necessity for the beginning courses and goes back to them with



renewed vigor. Juniors and Seniors who have demonstrated an ability to do independent work are occasionally excused from class attendance to carry on special projects. This has not yet been done with freshmen and sophomores but we have one freshman who will undoubtedly receive this opportunity in his sophomore year.

I think I am quite safe in saying that no gifted student in this department is ever handicapped in his development by the rules and regulations laid down for those of average ability.

### 3. In Music, Professor Hughes reports the following procedure:

Our Freshman course in music theory (476, etc.) is divided into three sections. The students are divided on the first day of recitations into three groups according to apparent ability. A student is then given as much individual attention as is possible with a limited staff. Each student is required to keep free the hours from 8 to 10 during which all three sections recite. When a student shows himself slower or faster than the section in which he is placed, he is accordingly shifted within the limits of the three-section possibilities. The fastest of these three sections takes another course number (480), and if the student is able to remain in it an entire quarter he may cover the entire first-year requirement in the subject and be advanced to sophomore sight singing during the Winter Quarter.

### IMPROVEMENT OF INSTRUCTION

The Dean is familiar with the notable improvement of instruction in Elementary Psychology, accomplished during the year by Professor Dockeray and his staff. Although in no sense responsible for this advance, the Junior Dean has been in touch with the progress made, through conference with Professor Dockeray and occasional attendance at his staff meetings.

The clarification and better definition of course objectives, the cooperative preparation of uniform objective tests which have enabled Dr. Dockeray to evaluate more clearly the teaching effectiveness of the various instructors, the experimental inauguration of the "two-level plan" in the interest of gifted students, and the beginning of systematic class visitation for observation of teaching, assistance, and rating—these have been accomplishments for which Dr. Dockeray is to be warmly commended.

The Junior Dean is hopeful that he may assist Dr. Dockeray during the coming year in the improvement of elementary course instruction, through:

1. The establishment of one or more special "demonstration sections" which instructors in training might visit systematically.

2. The arrangement of a credit seminar in "The Teaching of Elementary Psychology," in which members of the staff, working for the Doctor's degree, would be registered. This seminar would be closely related to the work of the "demonstration sections."

3. The wider extension of class visitation by Dr. Dockeray and whomever he may designate as his first assistant for this work, together with the formulation of special techniques for the rating of teaching efficiency upon a systematic and objective basis.

4. The requirement that instructors in Elementary Psychology, lacking the Doctor's degree, shall register, if possible, for the proposed three-quarter sequence of courses, to be offered jointly by the departments of Principles and School Administration and the Bureau of Educational Research, in "College Teaching, Curriculum-making and Administration."

5. Utilization of the services of Dr. Ralph W. Tyler of the Bureau in perfecting the program of objective tests and measurements.

Though again in no sense responsible for the very careful and productive experiments in the teaching of Psychology 407 by Dr. S. L. Pressey, assisted



by Dr. L. C. Pressey, the Junior Dean was closely in touch with this work throughout the year and was able to assist the experiment by securing special appropriations for its furtherance through request to President Rightmire.

The detailed report, as heretofore noted, will be transmitted to the Dean. Some appreciation of its value may be gained from the following "discussion of the results" prepared by the Drs. Pressey:

*Outstanding Values of the Experiment.*—The writers feel that the experiment has been very profitable in many ways. In the first place, it has led to an intensive study as to what is and what is not important in this required professional course. The construction of the examinations has forced a careful consideration of what the fundamental ideas really are. In the second place, the experiment has unified the teaching. The students now obtain the same essential facts no matter what section they are in. The instructors have thrashed out their points of view until they can present a unified front to the students. In the third place, the experiment has permitted an analysis of the course to see what is difficult for the students, what is known by them at entrance, what is not now being learned, and so on. On the basis of this detailed information, the teaching can be still further improved. In the fourth place, there has been a raising and a unification of the marking standards. At the same time there has been a decided decrease in failures and an increase in A's and B's. In the fifth place, there has been actual experimentation with different techniques of teaching with an objective checking on the value of these techniques. Finally, there has been compiled a file of some 2,000 objective questions on the course. These are now being classified by subject and with additions will act as a reservoir from which to draw in making up examinations at any future date. In total, then, the writers feel that the experiment has been eminently worth while from many points of view.

*Plans for the Coming Year.*—During the next year it is the intention of the writers to continue the experiment. There will be however, a *single* experimental technique, composed of the best points of all the techniques used this year plus certain further features which seem desirable. Half the sections are to use this unified experimental procedure. Each instructor will teach all his sections at any one time by the same procedure (either experimental or control) since it seems impossible to keep any information obtained from the experimental section from influencing the treatment of the control section if the same individual is teaching both at the same time. The control sections will be taught by the usual informal lecture-recitation method. The experimental technique to be used will include the following features: (1) There will be at the beginning a detailed pre-test of the first half of the course; there will be a similar detailed pre-test in the middle for the second half of the course. For the experimental sections, the results will be tabulated by item so that the instructors will have a diagnosis of weaknesses on the basis of which to proceed. (2) The writers have felt that the experiment this year has been weak in motivation. Next year, the A and B students are to be excused from class one day a week. Aside from furnishing motivation, this procedure will permit the instructor to deal more individually with the poorer students. The A students may also, during the last part of the course, be formed into committees one day a week. This group will be given a list of "thought" questions to discuss. There is some evidence to suggest that the committee procedure is rather useful at the upper end of the scale where the students really have something to say. (3) Each student is to be given at least one interview. Any suggested adjustments are to be reported at once to the Junior Dean of the student's college. (4) There will be objective examinations, but the instructors will not know what questions will be used. If the questions are selected at random (a certain proportion being taken from each section of subject matter) to a total of 300, there should be no significant difference in difficulty between exams thus selected. The results of teaching may, then, be compared from quarter to quarter even though the questions used are not the same.

At the instance of the Junior Dean, and with the cooperation of the



departments of Physical Education and of Anatomy, a reorganization of the course Anatomy 414, required of all Physical Education majors, was effected; a new instructor, Dr. L. F. Edwards, was placed in charge; and the course was shifted from the first to the second year of the Physical Education curriculum—with the following self-explanatory results:

	1928-29	1929-30
Total number of Education students in the course.....	88	59
Distribution of grades .....	A— 1 B— 4 C— 22 D— 27 E— 34	A— 2 B— 14 C— 18 D— 19 E— 6
Percentage of students receiving "D" and "E"—that is "unsatisfactory" .....	69	42.3
Percentage of students "failed" .....	36	10
Percentage of freshmen "failed" .....	51	
Percentage of sophomores "failed" .....		12.8
Percentage of students "unsatisfactory" whose previous point-hour ratio had been 2.0 or above.....	58	15.3

#### REMEDIAL WORK

The contributions of the department of Psychology, through the Remedial Reading and Probation 400 courses conducted by Dr. L. C. Pressey, and the expansion of Psychology 411 by Dr. Emily L. Stogdill, has been conspicuous and widespread throughout the entire junior area of the University.

The Junior Dean, as a liaison officer between the department of Psychology and the Junior Council, has assisted in the consolidation of all this work into a revamped Probation 400 course which will continue throughout the next year, serving all first-year students (and some sophomores) assigned to the work because of handicaps in previous preparation, reading, study habits, and marked social or emotional maladjustments. The Junior Council has requested this office to be responsible for the set-up of new techniques for the measurement and evaluation of the revised program.

The remedial program is important in these respects:

1. In assisting many students, who would otherwise be eliminated from the University almost at the outset, to (get a "fair start").
2. In fulfilling the University's obligation to do its best for every student eligible for entrance under the law.
3. As a source of research data of great value in the formulation of a program of pre-college guidance.

Despite the failure to salvage academically many of the students assigned to remedial work, the above considerations provide an ample answer to the charge of "coddling" frequently expressed. It is sometimes forgotten that there is a vocational-exploratory value for many students in even a comparatively brief college experience—and an understanding of this value is stressed in the probation course. Persistence through graduation is not the only criterion of educative value. Degree-holders comprise less than one-half of the list of "Ohio State University alumni." One in every four non-graduates contributed toward the building of the Ohio Stadium.

#### READMISSIONS

The problem of whether or not to recommend the readmission of a student dismissed under the rules is probably the most perplexing, personal prob-

lem confronting the Junior Dean. Each of these problems is an individual one, different from every other. Each raises the issue of the student's own future; each involves the professional standards of the College and the academic standards of the University.

The office is accumulating gradually a body of data and personnel information which should prove useful in the consideration of future cases. The Executive Committee has been generous in approving the Junior Dean's recommendations in all cases—and the office is obligated, therefore, to report the results to date:

Upon recommendation of the Junior Dean, 62 students have been readmitted following dismissal from the College of Education, all of these being freshmen or sophomores.

Five failed to register after readmission and may therefore be disregarded, for the present.

The median percentile of all readmitted students is 38.

Of the 57 who returned, 21 incurred a second dismissal at the end of the first quarter following reinstatement. Three of the 21 were readmitted a second time, two of them incurring a third dismissal at the end of another quarter, the third surviving one quarter with a point-hour ratio of 2.25 but failing dismally in the next quarter, thus being dismissed a third time.

This accounts for all but 36 of the original 62 cases. Of these 36, eight escaped probation or dismissal for one quarter, but failed to survive a second. One was thereupon granted a second readmission but was again dismissed. Three of the eight, during their one quarter of success earned point-hour ratios in excess of 1.8.

Of the remaining 28, one transferred to the College of Arts and Sciences after a quarter of satisfactory work. Three others withdrew, although not dismissed, at the end of one quarter's work. Two others failed to return after one quarter following their reinstatement.

The remaining 22 are still in school. Ten of these have weathered at least one quarter, following their reinstatement, with a point-hour ratio of at least 1.8, the graduation standard. Eight have done better than 2.0. Five others have made satisfactory records for two quarters. Three have survived three quarters; three others, four quarters.

To summarize: Of 62 students readmitted upon recommendation of the Junior Dean, only 22 are actually "in school" (the assumption being that they will return in the fall). One is in the College of Arts and Sciences (not included in the 22). Ten, though not in school, are eligible to return. Whether any of these 33 will ever succeed in graduating is still uncertain. Meantime, 29 have definitely failed, presumably never to return.

#### FACTS ABOUT FRESHMEN

Of 516 freshmen interviewed, only 136 reported themselves as self-supporting in part or in whole. The percentage of self-aiding freshmen in Education is therefore markedly lower than that in other undergraduate colleges, due possibly to the fact that nearly three-fourths of our freshmen are women.

Two hundred and one reported their participation in extra-curricular activities—which number is patently too low, and a matter of concern to the guidance officer, when it is remembered that participation and leadership in this type of activity have important educative value and assist inexperienced teachers to secure positions.

A tabulation of declared career and subject-matter interests, elicited in interviews, shows only 64 freshmen completely undecided as to vocation. A similar compilation of declared majors, prepared by Secretary R. D. Bennett, shows 127 freshmen undecided as to a major. Many of these, however, are



certain of their desire to teach but lack definiteness as to preferred subject-matter majors or minors.

Both the Junior Dean's and the Secretary's tabulations show a large shrinkage in the number of freshmen intent on majoring in English and History (hitherto the most crowded fields). The guidance program is evidently functioning effectively here in assisting students to choose majors based upon supply-and-demand studies of the Appointments Office. Talks by Dr. Anderson in the Survey course, the distribution of the "Do you Want to Teach?" pamphlet, and interviews with the Junior Dean are doubtless mainly responsible.

#### COOPERATION WITH PARENTS

The suggestion by the Junior Dean of the College of Education that the Freshman Week program include a "Conference for Parents" was indorsed by the Junior Council at the Springfield meeting and adopted by the Freshman Week Council in 1929. This conference, presided over by Dr. Charters and participated in by the junior deans, the deans of men and women, and the President, proved so successful that it will be repeated in 1930 and amplified by additional separate evening conferences for fathers and mothers.

This office, meantime, has continued the practice inaugurated last year of sending letters to the parents of all freshmen. In addition, the office has written 113 special letters to parents concerning their children, and has received 46 letters from parents dealing with problems of their sons and daughters. The Junior Dean has likewise conferred at his office with one or both parents in 28 cases, and with other relatives in six cases.

#### GUIDANCE

The Junior Dean is serving with Dean H. W. Nisonger and Mr. W. H. Cowley on a committee to which has been assigned the double responsibility of revising the *Suggested Program of Pre-College Guidance for High Schools* (prepared last year by Mr. Nisonger, Dr. Toops, and the writer), and of preparing a special manual for high-school students dealing with the college requirements and the prospects of college success.

The Junior Dean has likewise:

1. Served on the committee which revised the entrance-application blank of the University.
2. Addressed the Central Ohio Schoolmasters' Club at Columbus and the Springfield Schoolmasters' Club at Springfield upon the topic, "Guidance in Terms of Individuality."
3. Participated by attendance and discussion in the senior high-school section of the Guidance Conference staged by the State Department of Education at the Statehouse on January 30, 1930.
4. Cooperated with Dr. Earl W. Anderson of the Appointments Office in the preparation of a vocational-professional manual, entitled "Do You Want to Teach?" which was distributed to all freshmen and sophomores in the College, and is being sent to all high-school graduates who register as freshmen in the College, in advance of their coming to the University.
5. Presented a paper in the Higher Education section of the Tenth Ohio State Educational Conference upon, "College Adjustment to Individuality."
6. Addressed the parental child-study group of the First Congregational Church of Columbus on the discussion topic, "College Problems Rooted in Childhood."

It becomes increasingly evident that the majority of college-failure problems must be attacked at the pre-college level. The increasing differentiation of high-school curricula, the widespread deficiencies in previous preparation revealed by Freshman Week tests, the high degree of specialization in college curricula and vocational opportunity, the fact that college-entrance requirements are properly no longer the main objectives of secondary education—all these and other significant considerations make it plain that intelligent pre-college guidance is the most effective instrument to insure college persistence and success.

Approximately 40 per cent of all Ohio high-school graduates go on to college. This number includes thousands whose prognosis, by tested criteria, is extremely poor. There are other thousands with much better prospects who do not undertake college training, but who should be encouraged to do so. Without a program of adequate pre-college guidance, and practical advisability of a policy of exclusion, limitation, or discouragement on the part of the state university seems dubious.

The early selection and special treatment, within the high school, of desirable prospective college students as one among many recognized "vocational groups" would appear to be the desideratum.

#### PERSONNEL PROGRAM FOR THE COLLEGE

Completion of the second year of the junior deanship and the passing of last year's freshmen into the junior class ranks next fall raises the vital question of what further contact shall be maintained with these students.

Valuable personnel information, supplementing objective academic records, is on file with the Junior Dean for most of them: the records of personal interviews; health data; correspondence with parents in many cases; data from the psychological clinic and remedial courses in some cases; facts, ratings, and recommendations reported by interview section instructors; and the like.

Quite as important is the impression in the minds of many of these students that the College is interested in them personally as well as professionally. There has been, we venture to hope, a worth-while human contact with these young men and women.

The motivational value of this contact as well as the professional value to the college of personnel information about these students have already been somewhat dissipated in the case of this year's sophomores, by reason of the Junior Dean's necessary preoccupation with the new freshmen. This is unfortunate—and perhaps unnecessary. It is not so much that we *cannot* go on knowing and dealing with our students as individuals as that we are simply *not organized* to do so.

Bearing upon this problem is the request of the department of Principles and Practice of Education to the Junior Dean for assistance in setting up a "Sophomore Week" each year during which special conferences might be arranged for groups of students who are either interested in particular subject-matter majors or undecided about these. These conferences, it was proposed, would be addressed by such specialists as Dr. Seely in English, Dr. Tharp in foreign language, Drs. Brim, Zirbes, and Bronsky in Elementary Education, Dr. Pahlow in History, and Dr. Twiss in Science—and the conferences would be devoted to a discussion of the requirements and suggested course sequence for the various majors, supplemented by individual interviews with students



interested. It was proposed that Dr. Anderson of the Appointments Office might participate in these conferences by supplying up-to-the-minute information on supply and demand in the various subject-matter areas. The Junior Dean has conferred with Drs. Pahlow, Seely, and Bode concerning this plan, and it is hoped to make a beginning next fall or winter.

Meantime, the suggestion has been made to the Dean by Dr. W. W. Charters that a committee on selection and guidance of teachers be appointed within the College to study and evaluate as rapidly as possible the prospect of teaching-success for all students and to devise means for eliminating persons of little or no promise from the teacher-training curricula, whether this be in the freshman or as late as the senior year.

Both the "Sophomore Week" proposal and Dr. Charters' "selection and guidance committee" would presumably function best if incorporated into an organized personnel program for the College which would "carry on" from where the Junior Dean's freshman contacts leave off.

The College is evidently under obligation to devise such a program in its own and the interests of the students—and the tentative outline of an attempt in this direction will be suggested shortly by the Junior Dean for the consideration of the Dean and the Executive Committee.

Its operation would be related closely to the projected revised curriculum of the College and would probably require the cooperation of instructors outside the strictly professional courses. It would begin with a rehabilitation of the Freshman Survey and counseling by the Junior Dean, and would culminate in a more effective supervision of practice teaching and teacher-observation which the proposed new laboratory schools should afford.

#### MISCELLANEOUS ACTIVITIES

During the past year the Junior Dean has engaged in the following miscellaneous activities:

1. Service on the Subcommittee of the Curriculum Committee appointed to evaluate the problem of the teaching of guidance in the College of Education. This committee outlined in detail the viewpoint and content of a suggested fundamentals course in guidance and set up sequence for a first and second minor in guidance.
2. Membership on the committee appointed to determine the administrative status of the laboratory schools, and participation in conferences upon architectural plans for the proposed new high school.
3. Membership on the executive committee for the Tenth Ohio State Educational Conference, and the making of all arrangements for the large English Section luncheon of this conference.
4. Service as member and secretary of the Athletic Board of the University.
5. Membership on the Aims and Policies Committee of the American Alumni Council—which included attendance at important conferences at Vassar and Amherst colleges in November and May, respectively, and which helped to secure a grant of \$2,500 to the University from the American Association for Adult Education, for research and experimentation in "alumni education."
6. Assistance to Mrs. Jessie A. Charters in arranging the program for "Alumni Education Day" at the Tenth Ohio State Educational Conference, and participation in that program.
7. Membership on the Board of Directors of the Ohio State University Association, official organization of the alumni; and participation in all conferences relating to the projected "Alumni Research Foundation."

8. Participation in committee and campaign work for the "Cole Memorial Library," in the Department of Physics.

9. Arrangement and management of "College Night" for Education freshmen during Freshman Week, 1929.

10. Campus representative to the Springfield (Ohio) alumni celebration of "Ohio State Day," speaking upon the topic: "The Human Side of the University."

11. Membership on the Personnel Council of the University, the appointment of which by President Rightmire was suggested by the writer at the Springfield meeting of the Junior Council.

#### IN CONCLUSION

In conclusion, the Junior Dean desires to express anew his indebtedness, both official and personal, to the Dean of the College, whose stimulating encouragement, example, and support have deserved the reward of a service more conspicuous and constructive than we have been able here to report.

The office has enjoyed also the generous and unfailing cooperation of the Secretary, Mr. R. D. Bennett, and his staff, in all respects—so that no conflicts over academic technicalities and no insistence upon official prerogatives have occurred to embarrass the conduct of the personnel program within the junior area. From many members of the College faculty—notably Dr. Toops, Dr. L. C. Pressey, Dr. Stogdill, and Dr. Charters, the Junior Dean has received suggestions of great value and important assistance.

The addition to the Bureau staff of Mr. W. H. Cowley and Dr. R. W. Tyler has advanced notably the personnel program of the University which continues to profit by the substantial leadership and generous abilities of Dr. Charters.

The Junior Dean here records also his appreciation of the faithful and intelligent service of Mrs. Martha Mayer Bidwell, his assistant, who has been indispensable in the conduct of the office and has participated in almost every phase of its program.

There is the phenomenon known to all college administrators as the "sophomore slump." It is necessary to be on guard lest a personnel program, once the enthusiasm and challenge of its initial organization-period are past, may become perfunctory.

Resourcefulness in devising new approaches to the problem offers one way of escape from this danger. A more reliable avoidance is to be found in an abiding human interest in every student, new and old, who passes the campus portals. Where such an interest persists, "academic weariness" is inconceivable.

The source of such an interest depends upon contact with the individual student. Fortunately, this source is a perennial one.



## COLLEGE OF ENGINEERING

*Dean, E. A. HITCHCOCK*

This annual report of the College of Engineering for the year 1929-30 includes the departmental reports prepared by the chairmen and submitted to the Dean. Reference to these will give in detail certain items touched upon in a general way.

The past year was a very satisfactory one, the College moving forward in the directions of better teaching, betterment of physical equipment, and healthy increase in size of student body. The total registration at the beginning of the year was 5 per cent in excess of that of the previous year, and the number receiving degrees was 3.8 per cent greater than the year before. The numerical position of the College is fifth in the list of the leading engineering schools of the United States.

The report of last year pointed out the departments of Industrial and Metallurgical Engineering as having the greatest student increases. This year these increases, upon a percentage basis, fall to the departments of Industrial, Mechanical, and Mine Engineering. Four years ago, when the curriculum of industrial engineering was offered for the first time, there was a feeling that there would be a decided drop in mechanical engineering. The reverse has been the case; for, although there has been an exceptional growth in industrial engineering, an increase also of about 21 per cent has taken place in mechanical engineering.

From 1921 to 1927 there was a heavy decrease in registration in mine engineering due, we believe, to very unfavorable conditions prevailing in Ohio coal industries. This situation is now greatly improved and, as a result, the registration in the department of mine engineering increased over 40 per cent the past year. In the state of Ohio for many years there have been only two schools having departments of mine engineering. That department at Case School of Applied Science has now been abandoned; therefore it is expected that our department will be in greater demand since it is now the only one in the state.

The faculty of the College was well represented during the past year in the activities of the Society for the Promotion of Engineering Education. The thirty-eighth annual meeting was held at Montreal. Five members of our staff were present. Professor French was chairman of the conference on Drawing; Miss Sada Harbarger, chairman of the English Division; and Dean E. A. Hitchcock was first Vice-President and chairman of the Institutional Division. This meeting was an unusually full one as to program. The registered attendance was 448, which was about 65 less than the year before when the meeting was held here at Ohio State University. It is not to be expected that institutions in outlying districts will draw as heavily as those centrally located, therefore it is expected that the 1931 meeting at Purdue University will be the largest in the history of the society.

One of the most constructive developments which has resulted from recent nearly world-wide investigation of engineering education is the summer school for engineering teachers, the purpose of which is the improvement of

the teaching of engineering. To date there have been six such sessions held each year in different institutions throughout the country. Four of the schools have been attended by members of our teaching staff, and at three of these some of our teachers were members of the school teaching staff—namely Professors J. E. Boyd, C. T. Morris, W. D. Turnbull, and T. E. French, who was chairman of the teaching staff for Engineering Drawing and Descriptive Geometry, held at Carnegie Institute of Technology in June of this year. This activity is, I believe, of such great value that every encouragement should be given members of our staff to attend. I am advised that at the recent Pittsburgh meeting about 60 per cent of those in attendance had their expenses paid by their respective institutions. Certainly attendance at such a school, primarily for the betterment of teaching methods, is fully as valuable as the presentation of papers at scientific or engineering meetings, so that the University would be fully justified in bearing at least a part of the expense incurred by those staff members who attend.

As stated in my report of last year, the most outstanding event of that year was the appointment and activities of the Junior Dean. It was indeed very gratifying to see the enthusiasm with which Professor Turnbull tackled those problems having a vital bearing upon the scholastic welfare and success of our undergraduates, particularly the freshmen. His several interviews with all first-year students and also with many in the upper years, could not help but be most inspiring and a source of new life to many a young man who was finding the work extremely difficult and discouraging. The creation of this position is proving most constructive for this College. No more can it be said that the small engineering schools are preferable on account of their greater personal contact with the instructor. Junior Dean Turnbull's excellent annual report is quoted from below under its proper heading. It is expected that the complete report will be included in the President's annual report, as was done last year.

The activities which are the most effective in bringing about unity and solidarity in the student body are the *Ohio State Engineer's* staff and the Engineer's Council. Very few outside of the College, and many within, do not realize the important parts played by these two groups of upperclassmen. The publishing of the *Engineer* is a student responsibility which goes far beyond the campus, for it ties our College in with twenty-two other leading engineering schools of the country. There is, however, one "fly in the ointment," and that is many students, especially upperclassmen, do not give this activity their support through a subscription, which should not be the case. The freshman class always shows the highest percentage of support. One way to solve this problem is to place this item on the engineering student's fee card, a system which is used elsewhere.

The Engineer's Council, which is a fine cross section of the upper-class student body, had a most successful and active year. The annual Roundup, held in the large testing room of the Engineering Experiment Station, went over with its usual enthusiasm and success. The principal drawback, which always has been the case since this activity began, was that the space can accommodate only about 75 per cent of those who wish to attend. With the increased demand for that room by the growing work of the Station, it now appears that this important function must be held elsewhere, which, according to a survey of what is available at the University, means that in the future



we must go off the campus. The necessity of doing this is greatly to be regretted.

Another important responsibility of the Council is the direction and supervision of the many activities of Engineers' Day, which is a biennial affair and usually scheduled on Traditions Day. This year, on the preceding evening, "open house" was held by the departments of Electrical, Industrial, and Mechanical Engineering. The attendance was beyond expectation. A careful observation and registration indicated that about 1,500 inspected each department. The parade of floats on Engineers' Day around the oval, led by two university bands, was a great success, and those organizations which participated are to be congratulated upon their exhibits. The winners of the silver cups for the best department exhibit, and for the best float, were the department of Electrical Engineering, and the freshman engineering class, which entered a float for the first time.

The greatest need of the college will always be larger appropriations for equipment. While it is a fact that the departments of Electrical, Industrial, and Mechanical Engineering have fared very well during the past two years, all other departments, with possibly one exception, are in great need of new equipment. An examination of the 1930 Financial Report shows that, of the total inventory amount for equipment, the three departments mentioned above have 54 per cent, with the remainder distributed over thirteen other departments including the Broadcasting Station and Department of Photography.

Additions to the building part of the physical plant will always be a pressing need unless the college becomes a back number and "goes to seed." For many years we have been urging the completion of Brown Hall. This building was too small when it was constructed twenty-six years ago. All departments are crowded, and for some of the civil-engineering work, space is being used in the Engineering Experiment Station building—space which is now in demand for some of the Station work. It has always been the plan to locate the College administrative offices in Brown Hall. During the past year these offices were given a temporary location in the new Chemistry Building in space allotted to the department of Chemical Engineering. This change was a wonderful improvement over past arrangement—but not what it should be—and afforded small but valuable relief to the department of Ceramic Engineering. This slight change does not lessen the importance of completing Brown Hall, for which appropriations were set up six years ago and then struck from the appropriation bill. While the completion of Brown Hall has been under discussion, and delayed, other building needs have arisen and are now in the immediate foreground. These additions have been determined by a committee of the College making a study of the situation, and its recommendations for the next biennium are buildings for Electrical Engineering and the School of Mineral Industries.

The greatest change made during the year in the College organization was the transfer by the Board of Trustees, upon the recommendation of the President, of the departments of Chemistry, Mathematics, and Physics to the College of Arts and Sciences. It was to be expected that the engineering faculty would not look with favor upon such a change, believing that the most important fundamentals of engineering should be taught in this College. However, since engineers are organization men, regardless of what the decision of their superiors may be, their interest, enthusiasm, and loyalty will not be

lessened, and they will always support wholeheartedly all constructive measures.

Below are comments upon the report of Junior Dean Turnbull, followed by the several reports submitted by department chairmen. The activities of the Engineering Experiment Station have been reported to me very fully by Assistant Director Weed, and are a part of this report.

#### ACTIVITIES OF THE JUNIOR DEAN

The second annual report of the Junior Dean, quoted in full elsewhere in the Annual Report of the President cover most interestingly his activities during the past year. No more can it be said of our College that, due to its large number of students there is little, if any, personal contact between members of the staff and students. Not only has the major part of Dean Turnbull's time been given to individual interviews, some 1,337 in number, but he organized interview sections among the different members of the teaching staff so that his personal interviews were supplemented by 1,563 conferences by seventeen different staff members. The value of these interviews was very apparent for the "students liked the opportunities to know their instructors personally." The instructors interviewing students were impressed with the value of their work, and through a confidential questionnaire at the close of the year the Junior Dean learned that these particular instructors "ranked generally high in popularity."

One very disturbing factor is the large number of students entering with conditions. Comparison with some 83 other engineering schools shows that on the average 17 per cent of their students have entrance conditions as against 48 per cent at Ohio State University. One of Dean Turnbull's investigations showed that about 75 per cent of those entering this college had made the decision three or more years before; therefore, it certainly appears that many high-school advisers were negligent about giving out the proper information.

The Junior Dean has placed special emphasis upon higher scholarship, and has adopted methods which are an encouragement to the major portion of our students. He had a feeling "that in our eagerness to select the super-student, and in our solicitude for the student who is scarcely able to pass his work there was a danger that the great middle class" . . . "might be neglected," an oversight which would be serious indeed. And so Professor Turnbull is constantly studying over ways and means for strengthening and making more effective every effort on the part of all our conscientious students.

#### BROADCASTING STATION R. C. HIGGY

During the past year Broadcasting Station WEAO has presented an extensive and varied educational program, transmitting a total of 1,014 hours, representing 1,303 separate programs. Over one thousand lectures were given by faculty members of 46 University departments, in addition to many educational features supplied by other agencies. Thirty-three different radio courses, each consisting of from five to fifty lectures on the same or related subjects, were presented, as University radio courses of instruction. Thirty-five per cent of the total broadcasting time was devoted to night programs, the station transmitting on 140 evenings during the year. Many special programs have been broadcast direct from the University buildings and other points, including



the sessions of Farm Week, the Educational Conference, the College of Education summer lecture series, Ohio State Fair, Radio Institute meetings, Commencement programs, band concerts, and varsity football and basket ball contests.

The Commerce Extension and the Romance Language departments broadcast radio lecture courses for which textbooks were assigned and definite work indicated to be done by the student listener. These both have proven successful, particularly the Spanish course given by Professor Gutierrez, in which over two hundred students participated regularly. At the conclusion of this course many letters were written in Spanish to the lecturer by students in appreciation of his work and excellent manner of presentation. An offer during the progress of the course to correct and grade written assigned work resulted in more papers being received than could be handled. The economics course, given by Professor H. Gordon Hayes in cooperation with the Commerce Extension Department, was successful in every way, although only thirty-five students participated to the fullest extent in registering, purchasing the textbook, and carrying out the assigned work. Both of these courses have demonstrated the need for extension radio courses of instruction organized and prepared in a suitable manner.

On July 15 the frequency assignment of the station was changed by order of the Federal Radio Commission to 570 kilocycles, providing a channel more free of interference, and hence a better opportunity to serve the people of Ohio. That this Commission was interested in providing improved service for the University programs, and agreed not to make any change without the approval of the University is a tribute to the increasing importance of educational radio programs. There has been vastly better reception of the WEO programs within the relatively small area, limited as it is because of the low power of the station.

The cooperation of the faculty has been commendable, in view of the limited audience reached by the station. Preparation of the lectures broadcast has required much time, which has been freely given by the many faculty members who appeared on the programs. Many departments of the University believe that contact with the general public is most desirable and have accepted the opportunity of reaching the people of the State through WEO.

The Broadcasting Station Committee, appointed by President Rightmire, has met each month and formulated plans and policies for carrying on the work of the station. This committee is of inestimable value in directing the station, and the splendid spirit displayed is to be commended.

The value of the station in keeping the citizens of our state informed of the opportunities, work, and conditions existing at the University was clearly demonstrated during this past year through the alumni and other special programs. A comprehensive series of lectures was also broadcast by the Governor and members of his cabinet to similarly acquaint the radio listener with the activities of the various state departments. In cooperation with the State Department of Education, the "School of the Air" programs were performed and transmitted by wire to a more powerful station.

The need for a larger transmitting station has been keenly felt during the past year. In spite of a new and more favorable frequency assignment, the station, because of limited power, is able to reach only slightly more than one-half of the state of Ohio in a satisfactory manner. This fact has been responsible for retarding the advancement of the station's program, because



of the indifference of the lecturer or performer when he realizes that he can reach only a portion of the Ohio radio audience. The quality of transmission possible with the present equipment is far below the standards now accepted, and cannot be improved without major and complete changes. Also, the increasingly rigid requirements of the Federal Radio Commission have been difficult to meet. These facts have made apparent the need for new transmitting equipment of proper power and quality, and resulted in the faculty broadcasting committee recommending the purchase and installation of such a station next year—a station that will truly be an Ohio station, capable of bringing the work and teaching of the University to every citizen of the State.

## ELECTRICAL ENGINEERING

E. E. DREESE

The Department of Electrical Engineering has, it is believed, taken many forward steps within the past year, in spite of the fact that it has undergone a change in administration in the person of its chairman at the middle of the school year.

The department wishes at this time to express its sincere appreciation for, and acknowledge its indebtedness to, the able leadership of Professor Frank C. Caldwell. His has been the guiding hand in Electrical Engineering on the Ohio State University campus for upwards of thirty years. Having now been relieved of the details of departmental administration, he is serving as a highly valued counselor and adviser in the present organization.

The new departmental chairman has spent some little time during the past year in visiting other engineering colleges in the Middle West and in the East. Fifteen such schools were visited. The purpose was broadly to find what the present "state of the art" is in teaching engineering and particularly electrical engineering. More specifically such things were looked into as: building requirements, equipment requirements, curriculum trends, methods of instruction, graduate work and its future, and practical and professional contacts of faculty members. In addition there was the desire to contact men who either are or likely will be outstanding in the field.

The results of such a trip are highly valuable because of the broad view it gives of the activity in the field in question. No research worker, if he is of high class, and certainly no business executive, if he expects to remain such, fails to keep himself in touch with what others have attempted and are attempting in lines similar or allied to his own. College executives can do no less. Therefore such visits, it is believed, should be made *annually*. The expense is small, the expansion of the horizon large.

Electrical engineering buildings have become specialized in that they are now designed with one or two large laboratories and several small laboratories for research and thesis work by graduate students, staff members, and research professors. Much of the "new electrical engineering" has to do with vacuum tubes, high voltage, electro-acoustics, and other subjects which are mutually interfering unless housed in separate smaller rooms. Rooms throughout the building are connected by special wire-ways for the easy installation and dismantling of inter-room circuits.

In the matter of equipment for electrical engineering departments most have found the situation has been radically changed within the past few years because of the rise of the "new electrical engineering" referred to above.



No longer is a room full of motors, generators, rheostats, and lamp banks sufficient. There is a new family of equipment to be reckoned with such as oscillators, thyratrons, cathode ray oscillographs, and hundreds of others all brought in by the radio, the lightning researches, talking pictures, and the beginning of television.

The "new electrical engineering" will bring with it some changes in our curriculum in electrical engineering. Studies to this end will probably be completed by the department before this report is printed.

Methods of instruction, particularly for the gifted student, are being made the subject of experiment at certain other schools. The department is studying these experiments and hopes to formulate its ideas for adoption in the near future.

The members of the Department of Electrical Engineering have made a creditable showing during the past two years in a professional way. This refers to publication and also to work for industrial companies, largely in the summer. Professor Caldwell has just published a new book on illumination. There have been a number of reports published through the Engineering Experiment Station on small electric motors, radio antennas, and illumination. There have also been papers read before national engineering societies. During the summer there were at least five members of the staff engaged on important engineering work for commercial companies.

#### ENGINEERING EXPERIMENT STATION

*Director, E. A. HITCHCOCK*

The items most worthy of inclusion in the report of the Engineering Experiment Station for the year just closed are the interest and work of the staff.

Professor F. H. Eno continued his study of the bearing power of highway subsoils, a project in cooperation with the Ohio Department of Highways and the U. S. Bureau of Public Roads. Professor G. A. Bole remained in charge of the work in ceramics, assisted by Mr. H. D. Foster, senior research engineer at Columbus on the investigation cooperative with the Structural Clay Tile Association, and by Messrs. H. C. Harrison and J. O. Everhart, senior research engineers at the Roseville Branch. Professor J. R. Shank and Assistant Professor G. E. Large of the Department of Civil Engineering have been half-time members of the Station staff during the year. Last July Mr. A. H. Dierker became senior research engineer in fuels and metallurgy; Mr. H. M. Faust was appointed in December as senior research engineer for the investigation of Ohio coals; and in January Mr. G. A. Loomis began the duties of senior research engineer in the study of problems of the whiteware branch of the ceramic industry. Other new members of the force are C. R. Austin, junior research engineer in the investigation of Ohio shales; G. L. Lee, assistant in metallurgy; T. G. Barnes, research engineer in the study of fluid flow on which the Bailey Meter Company is cooperating, and K. Van Schoick, assistant in the ceramic fuel study.

At the end of the year R. E. Birch, junior research engineer at Roseville, resigned to accept a position with the Harbison-Walker Refractories Company. Although the Station's research work is handicapped by Mr. Birch's resignation, we realize that training research men for the industry is an important function of an engineering experiment station.

The members of the Advisory Council, Professors D. J. Demorest, F. W.

Marquis, C. T. Morris, Alpheus W. Smith, A. S. Watts, and James R. Withrow, have given freely of their time, not only in administrative problems of the Station but also in the conduct of research projects.

Mr. J. M. Weed, Assistant Director, who is also secretary to the Council, has now been with the Station three years. During that time the Station activities have multiplied greatly, and consequently there is much added responsibility. Mr. Weed has measured up, very fully, to all demands made upon him. His intense interest and conscientious devotion to all matters relating to the Station has the highest appreciation of the Council and Director.

The following members of the University faculty have, in addition to their teaching, devoted much time to investigations of the Station:

S. R. Beitler	E. E. Kimberly	A. F. Puchstein
F. C. Blake	R. M. King	O. D. Rickley
A. I. Brown	W. A. Knight	C. P. Roberts
Paul Bucher	F. W. Marquis	C. E. Sherman
F. C. Caldwell	O. J. Marshall	R. C. Sloane
E. F. Coddington	Wm. J. McCaughey	K. W. Stinson
W. L. Everitt	G. N. Moffat	Wilbur Stout
C. W. Foulk	H. E. Nold	K. Y. Tang
Horace Judd	C. A. Norman	John Younger
	J. C. Prior	

Much of the accomplishment in research was made possible by the loyalty and industry of Miss Mildred DePue and other members of the clerical staff.

Friendliness and cooperation have made the Station work pleasant and efficient. The teaching departments have cooperated; the Business Manager, Purchasing Agent, Comptroller, Auditor, and members of their staffs have been most helpful; the Receiving and Service Departments have facilitated the Station projects; the University Press has helped with the publications; the Director of the News Bureau has aided in increasing the value of the Station to the people of Ohio.

#### STATION ACTIVITIES

The Ohio Engineering Experiment Station has attained, in resources and work accomplished, fourth place among the 39 stations of the country.

Monthly meetings at which the various research projects were briefly described by those in charge were interesting and stimulating to members of the research staff and others who cared to attend. One meeting was held at the Battelle Memorial Institute. The hospitality and cordiality of the Institute staff were much appreciated.

Through the courtesy of Director Higgy, talks of the Engineering Experiment Station series were given twice weekly from Radio Station WEO. Members of the staff and faculty were generous in giving their time and effort in the preparation of these talks.

Throughout the year inquiries and visits have shown the interest of Ohio manufacturers and business men in the work of the Station. The ceramic and coal industries particularly have shown appreciation of the value to them of engineering research.

The demand for station publications has been steady, encouraging us in the feeling that the information is being widely used. Requests have come from all over the world. Our bulletins have received excellent publicity in the technical press. The circulars on home ownership, the purchase and use of coal, and the selection of dinnerware have made the Station known to the people generally.



Improvements during the year to the Station's physical plant include the installation of a constant-temperature constant-humidity room for curing specimens of concrete, the making of a load distributor for use with the large testing machines, and the design (by Professor Shank) of a tilting device to obtain the effect of a loaded beam resting on a pier. Equipment has also been obtained at Roseville for an exhaustive study of ceramic fuels in cooperation with the U. S. Bureau of Mines.

#### NEW PROJECTS

During the year the Advisory Council authorized the following projects:

104. Publication of Engineering Papers Relating to Management. J. R. Withrow.
105. Stream Pollution Control in Ohio. F. H. Waring and John C. Prior.
106. Radio Altimeters. W. L. Everitt.
107. Investigation of Domestic Coal Distribution. A. H. Dierker, H. E. Nold, and Bureau of Business Research.
108. Molding Sands. A. H. Dierker.
109. Studies on the Consistency and Workability of Concrete. J. R. Shank.
110. House Plumbing and Sanitation. J. N. Bradford, J. R. Shank, and William C. Groeniger.
111. Developments in the Design of Shaded-Pole Motors. E. E. Kimberly, A. F. Puchstein, and K. Y. Tang.
112. Ceramic Fuels Study. Study of Kiln Design and Fuel Efficiency. G. A. Bole, H. C. Harrison, and U. S. Bureau of Mines.
113. Friction of Air in Elbows. A. I. Brown.
114. Sampling of Pulverized Coal in Coal-Air Stream. D. J. Demorest.
115. Studies of the Capacity of Regenerators. D. J. Demorest and William Mueller.
116. Losses and Voltage Relations in Small Universal Motors. A. F. Puchstein, I. E. Campbell (Ohio Northern University faculty).
117. Manual on the Determination of Azimuth for the Use of Surveyors. E. F. Coddington.
118. Visual Performance under Different Light Sources. K. Y. Tang.

General ceramic investigations at the Roseville Branch were given the following designations:

- 07-1. Dry Pressed Refractories. R. E. Birch.
- 07-2. Simulative Service Tests of Glazed Brick. J. Otis Everhart.
- 07-3. Study of Sewer Pipe. H. C. Harrison.
- 07-4. Salt-Glazing Problems. J. Otis Everhart.
- 07-5. Increase of Porosity of Stiff Mud Brick. G. A. Bole.
- 07-6. Miscellaneous work on problems of ceramic industries. Station Staff.
- 07-7. Dry Pressing of Paving Brick. J. Otis Everhart.

#### STATION PUBLICATIONS

The following publications were issued during the year:

- Bulletin 48—The Design of Tall Building Frames to Resist Wind. Clyde T. Morris and A. Ward Ross, Jr.
- Bulletin 49—Run-Off Formulas and Methods Applied to Selected Ohio Streams. John C. Prior.
- Bulletin 50—A Description of the Engineering Experiment Station, Ohio State University. E. A. Hitchcock and J. M. Weed.
- Bulletin 51—Drain Tile Manufactured in Ohio. J. Otis Everhart.

- Bulletin 52—Single-Wire Transmission Lines for Short-Wave Antennas. W. L. Everitt and J. F. Byrne.
- Bulletin 53—Universal Electric Motors: Their General Properties, Performance, and Design. A. F. Puchstein and E. E. Kimberly.
- Bulletin 54—Cold Crushing Strength of Fire Brick. Humansu K. Mitra.
- Bulletin 55—The Function of Peptizing Protective Colloid in the Casting of Clay Slips. Paul H. Mautz.
- Circular 17—How to Burn Ohio Coal in the Home. A. H. Dierker.
- Circular 18—Simulative Service Tests on Glazed Brick. J. Otis Everhart.
- Circular 19—Mining and Cleaning Domestic Coal in Ohio. A. H. Dierker and H. E. Nold.
- Circular 20—A Decade of Progress in Highway Research. F. H. Eno.
- Circular 21—The Selection of Dinnerware for the Home. Arthur S. Watts.

Late in the summer of 1929, an 80-page mimeographed report on the ceramic materials at the Roseville State Brick Plant was written by R. E. Birch and C. R. Austin for submission to the Director of the Ohio Department of Welfare.

The Engineering Experiment Station *News* was sent monthly to more than 3000 manufacturers, officials, newspapers, research workers, and others who were interested. This prompt reporting of the work of the Station has been favorably received.

#### PROGRESS ON PROJECTS

Following is a brief report of activities on projects during the year:

1. The collection of records of Ohio stream flow has been practically completed.
8. The study of the properties of alloys was continued with the assistance of a graduate fellow maintained by the Engineering Experiment Station.
14. Observations were made at intervals on the position of the skew-arch of the Broad Street Bridge. This investigation is a long-time study of the movement of such arches.
17. The highway subsoil investigation has now yielded sufficient knowledge of the behavior of soils and of treatments for their improvement so that practical application can be made of the results. The study is now directed toward such practical application. Methods of soil separation developed in this laboratory have been adopted by the Bureau of Public Roads.
35. A large amount of information on the strength and use of v-shaped belts has been obtained and practically prepared for publication.
46. Progress has been made in the study of alloy steels by X-ray methods. This work is of especial importance to the Ohio alloy steel industry.
53. The investigation of the tendency of concrete to yield or flow under load has been continued. This is a long-time study of an important property of concrete.
61. The investigation of Ohio ceramic industries has been continued by study of the difficulties of the manufacturers of whiteware.
67. The investigation of ceramic building materials has been supplemented by an important study of the properties of pilasters (short sections of wall) under load. The results are nearly ready for publication. Cooperation has been obtained on this project.
71. Tests of the low-temperature carbonization of coal are being continued in cooperation with the Battelle Memorial Institute. The Institute is furnishing the personnel, materials, and special equipment needed, and is using the gas laboratory of the Station.
72. The American Insurance Union building has served as a laboratory for the study of loads and stress distribution in tall building frames. A



fellowship for assistance on this work was furnished by the American Institute of Steel Construction.

74. The study of checker brick in the steel industry has been continued, several companies cooperating by permitting brick whose properties have been determined by test to be used in their plants and tested again after removal.
75. The Calcium Chloride Publicity Committee fellow has continued the mineralogical study of the curing of concrete. This laboratory study is being supplemented by tests on pavements in cooperation with the Ohio Department of Highways.
77. Field studies have been made of high-frequency supply for radio sending sets.
80. Through the cooperation of the Bailey Meter Company, which has furnished funds for the hiring of a junior engineer and for the purchase of supplies, the study of fluid flow in pipes has gone forward rapidly. A preliminary paper was presented by Professors Bucher and Beittler at the December meeting of the American Society of Mechanical Engineers. Results are now being prepared for publication.
81. A graduate fellow, maintained jointly by the Station and the Columbus Branch, U. S. Bureau of Standards, has made tests of the ceramic properties of a number of Ohio clays.
82. Effects produced by heating feldspars have been studied by a Station-Bureau of Standards joint fellow in ceramic engineering.
83. In the Department of Chemical Engineering a study of the changes developed in clays during firing has been conducted by the fellow maintained jointly by the Station and the Columbus Branch, U. S. Bureau of Standards.
84. The results of the project on the use of fluorides in enamels have been practically prepared for publication.
85. A large number of tests in the department of industrial engineering have yielded information on the efficiency of milling cutters on various metals. The Cincinnati Milling Machine Company has cooperated on this project by lending a milling machine of the most modern type.
86. Tests of gear pumps, indicating the possibility of their successful use in the oil fields, were reported in the March issue of the *News*.
87. An intensive study of the use of clay tile in "flat-arch" floor construction has yielded much information needed by designers. Cooperation was obtained from manufacturers of the tile and of the reinforcing steel used.
89. Tests, in cooperation with the Ohio Geological Survey, of the ceramic properties of Ohio shales are about two-thirds completed.
91. The experiments on visual acuity in different kinds of light have indicated the relative value of several lighting media. The results are ready for publication.
92. Progress has been made in the study of the effects of engine variables on the detonation of gasoline.
93. A careful check has been made of the points in Ohio whose elevations have been accurately determined by the U. S. Geological Survey and Coast and Geodetic Survey, and the results are nearly ready for publication. An important part of the work on this project was the holding of the first annual County Surveyors' Institute, a meeting at which the importance of careful preservation of the bench marks was explained to the County Surveyors present. Cooperation of the surveyors in preserving these marks will result in a large saving to the State and Nation.
96. The Ohio Salt Company cooperated with the Department of Chemical Engineering in a study of the vacuum evaporation of salt brines.
98. The results of this study of vitreous enamels, for which the Engineering Experiment Station established a fellowship, are practically ready for publication.

99. The investigation of the holding power of joints in cast-iron pipe has made progress. Labor for this project has been furnished by the City of Columbus and pipe by the Cast-Iron Pipe Research Committee.
100. The investigation of Ohio coals has been one of the most active and important of the Station projects. This study was undertaken at the request of the Ohio coal industry and with the approval of the Ohio Department of Industrial Relations. The Station's circulars and radio talks on proper use of coal have been given credit by the coal operators for a greatly increased demand for Ohio coal and for the use of more economical sizes. The tests conducted at the University Power Plant, through the courtesy of the superintendent of buildings and grounds, are affording information on the use of Ohio coals for power generation. The coal companies have cooperated in these tests.
101. Preliminary results on this project, tests of propeller fans, were given in a paper presented by Professor Brown at the 1930 meeting of the American Institute of Heating and Ventilating Engineers.
102. The performance by students in the Department of Industrial Engineering of simple manual tasks has been studied on this project for obtaining a fundamental basis for time-study averaging. This study is to be correlated with the investigation of visual acuity in different kinds of light.
103. Establishment of an Engineering Experiment Station fellowship enabled the study of the cause of adherence of scale in steam boilers to make substantial progress.
106. The tests of radio altimeters were financed by a grant from the Guggenheim Fund for the Promotion of Aeronautics.
107. The investigation, in cooperation with the Bureau of Business Research, of the distribution of domestic coal in Columbus, gives promise of affording information of value to producers, dealers, and consumers.
108. The molding sand study is proceeding in the foundry of the Department of Industrial Engineering, and has attracted attention and cooperation in the steel industry. Mr. Dierker's paper, presented at the 1930 meeting of the American Institute of Mining and Metallurgical Engineers, was very favorably received. His brief "Essential Properties of Molding Sands," published in the *News*, has been reprinted in three journals of national circulation in the industry.
112. The study of ceramic fuels, conducted at the Roseville Branch, is one of the most important projects of the Station. The U. S. Bureau of Mines, in addition to furnishing instruments, has assigned two engineers to this work, and the Whiting Corporation has installed a stoker for tests of the stoker firing of periodic kilns.
- 07-1. The study of dry-pressing of refractories at Roseville was reported by Mr. Birch at the 1930 meeting of the American Ceramic Society and attracted wide attention. The results are now nearly ready for publication.
- 07-4. Mr. Everhart reported his study of salt glazing at the 1930 meeting of the American Ceramic Society.
09. Researches, cooperative with the Structural Clay Tile Association, have been conducted to determine the possibilities of producing light-weight building units.

#### THE EXPERIMENTAL HEAVY CLAY PRODUCTS PLANT AT ROSEVILLE

The Roseville laboratory of the Station, operated under the direction of Dr. G. A. Bole, has been a valuable aid to the ceramic industries of the State, and has won for the University the good will of many manufacturers.

In its facilities for research, the Roseville plant is unique in that laboratory results may be followed through to a thorough investigation under plant conditions. The set-up permits research to be undertaken in new fields for improvement of methods of manipulation and properties of wares, with appli-



cation of the findings to a working plant. In addition the Station can readily be of assistance to commercial plants in providing facilities for solving various manufacturing problems, and in systematizing and unifying the research of the widely scattered establishments, a service of inestimable value to an industry that is broken up into so many small units. Clays and other materials used for ceramic products may be examined, and their properties, strengths before and after firing, firing range, porosity, and other characteristics determined. Such tests are particularly valuable in the case of new deposits.

The Roseville experimental plant has been in operation since June 1, 1928, and has rendered technical service to a large number of Ohio manufacturers of heavy clay products as part of an extensive program of assistance to the ceramic industries of the state. Difficulties with forming, firing, pimpling, crazing, and other defects of ware have been brought to the Station and overcome by experiments with various methods. Much important work has been done by adding electrolytes, salts, acids, and bases, to improve clays that are widely distributed and convenient for manufacturing but are deficient in strength. Cracking and other difficulties are often greatly reduced. The kind and quantity of the chemical needed depend on the kind of material to be improved, and each clay has to be studied separately to discover the proper treatment. Chemicals have also been used to advantage in studies of the making of light-weight clay products by adding substances that will produce gases and cause expansion of the plastic material.

In cooperation with the Fuels Section of the United States Bureau of Mines, the Station has undertaken an exhaustive study of fuels and firing at the Roseville branch. Two engineers have been assigned to this study by the Station, and the Bureau has also provided two men, as continuous conduct of the experiments requires that some member of the technical staff be always on duty. Instruments for this study have been provided by the Bureau.

This study of fuels and firing is expected to last over several years and to cover various methods of using a number of fuels. Tests are now being made of stoker firing for kilns, particularly for the introduction of the hot gases into the kilns, under pressure. A chain-grate stoker and accessories, including fan equipment for maintaining the pressure and necessary housing, have been installed by the Whiting Corporation which is cooperating.

During the past year the following firms have brought their problems to Roseville:

Aetna Fire Brick Company	DeHoven Coal Company
Alliance Clay Products Company	Federal Clay Products Company
American Encaustic Tiling Company	Harding Kemp Company
The Bonnot Company	Junction City Sewer Pipe Company
Cherokee Brick Company	Junction City State Brick Plant
Claycraft Mining and Brick Company	F. R. Kanengeiser
Davis Fire Brick Company	Malvern Clay Company
William E. Dee Company	McClain Fire Brick Company
Metropolitan Paving Brick Company	Robinson-Ransbottom Pottery Company
Ney Tile Company	Summittville Face Brick Company
North American Refractories Company	Summittville Fire Brick Company
Ottawa Tile Company	U. S. Gypsum Company
Portsmouth Refractories Company	Prof. A. S. Watts
Department of Public Welfare	Watts Pottery Company
W. D. Richardson	Wellsville Fire Brick Company

The above statements indicate the activities of the Station and the great

diversification of its projects. Appeals are now being made from many quarters—from industrial as well as state activities—for assistance in solving some of their problems. The Station, therefore, is fulfilling the purpose for which it was established. Its growth has been very rapid during the past four years; it is very much of a going concern; and its products are benefits to the scientific, engineering, and industrial life of the State.

## REPORT OF JUNIOR DEAN

WILLIAM D. TURNBULL

In this, my second annual report as Junior Dean of the College of Engineering, I have covered a number of details of the year's work. We are still experimenting, but I believe that the work of this second year has been more successful than that of the first; I should be disappointed if such were not the case.

Throughout the year working conditions in the office have been most pleasant. The spirit of cooperation and earnestness of the members of the College office force has promoted harmony and efficiency in performing the tasks that have devolved upon the Junior Dean.

Following the example set by the Dean of the College, we have made it a rule to meet the student in a pleasant manner and make him feel that the College office is organized to serve him; that though we may have to refuse some of his requests we are not arbitrary in our decisions.

I wish to take this opportunity to express my appreciation of the interest of the Dean in my work and of the counsel and guidance he has given me. His confidence in me has encouraged me in my personal work with our freshman engineers.

When the junior deanship in the College of Engineering was established I entered upon my duties with enthusiasm, and now, after two years of work with the freshman engineers, I believe that this experiment in humanizing relations between University and students has been notably worth while. The counsel and freedom of action given me by the Dean, and the inspiration and leadership of President Rightmire have greatly encouraged me in organizing this pioneer work in our college.

## PERSONAL CONTACTS

Talking with the students about their plans and ambitions, their school work, and frequently discussing with them personal, health, domestic, and social problems have taken up by far the greater portion of my time. Every freshman has been interviewed at least once during the year. The number of interviews given me personally, according to quarters and classes, was as follows:

Students	Autumn		Winter		Spring		
	Vol.	Req.	Vol.	Req.	Vol.	Req.	
Freshmen .....	151	472	123	65	83	43	937
Sophomores .....	80	38	77	71	50	10	326
Juniors .....	10	2	16	29	9	1	67
Seniors .....	1	0	2	2	2	0	7
Totals .....	242	512	218	167	144	54	1,337



In all, 807 different students came to my office for interview, 528 freshmen and 279 upperclassmen. The number of interviews sought by the students was especially gratifying, 604 during this year as compared with 103 during 1928-29.

The number of times individual students came in for conference is interesting. The following table gives a summary:

Times Interviewed	Freshmen	Upperclassmen	Totals
Once.....	274	192	466
Twice.....	169	58	227
Three times.....	57	20	77
Four times.....	20	5	25
Five times.....	7	2	9
Six times.....	0	1	1
Seven times.....	0	1	1
Eight times.....	1	0	1
Totals.....	528	279	807

In addition I had nineteen talks with parents and other relatives, and twenty-two interviews with ex-students and prospective students. Two hundred and twenty-one personal letters were written to students or parents of students.

Although the information obtained in these personal interviews is available for the use of instructors, much of it is of a confidential nature and is kept in a filing cabinet separate from the other personnel records of the students.

In my personal work with the students I have been greatly assisted by the advice of Dean Hitchcock and the pleasant cooperation of Miss Lenora Glasgow, Assistant to the Dean. Miss Glasgow has contributed most generously of her complete knowledge of the curriculum and problems of the students.

#### INTERVIEW SECTIONS

The personal interviews of the Junior Dean were but a part of the plan to arrive at a sympathetic understanding of the students and their problems. The interview sections, inaugurated in the Spring Quarter of 1929, were continued this year on a much more extensive scale. During 1929-30 the interview sections and conferences in the College of Engineering were as follows:

Quarter	Sections	Students
Autumn .....	22	634
Winter .....	14	481
Spring .....	13	448
Total .....	49	1,563

The table on the following page lists instructors, who did interview work during the year.

The cooperation of these instructors in interviewing the students and in furnishing reports was of material assistance to the Junior Dean.

These statistics on interview sections do not begin to tell the complete story: the students who returned for additional conferences, the discussions that lasted an hour or longer because instructor and student found so much to talk about, friendships based on common interests and tastes. The students liked these opportunities to know their instructors personally; they told me so

in their interviews with me. It is significant that the instructors doing interview work ranked generally high in popularity according to a confidential questionnaire filled out by the students at the close of the year.

The instructors interviewing students were impressed with the value of their work. Those who expressed themselves to me felt that friendliness and removal of misunderstanding, awakening of interest and extension of class

Name	Department	Quarters and Sections Served
Florence Chubbuck.....	English	A, 1; W, 2; S, 1
R. M. Estrich.....	English	S, 2
T. E. French.....	Eng. Drawing	A, 1
Frances J. Hall.....	English	A, 1
Sada A. Harbarger.....	English	A, 1; W, 1; S, 1
Mary A. Hitchcock.....	English	A, 2; W, 2; S, 2
L. M. Hoff.....	English	A, 2; W, 1
Robert Meiklejohn.....	Eng. Drawing	A, 1; W, 1
E. S. Miller.....	English	S, 1
C. S. Nesbitt.....	English	A, 2
J. F. Royer.....	English	A, 2; W, 2
R. Schaupp.....	English	S, 1
Freda Schulz.....	English	A, 2; W, 2; S, 1
L. E. Snyder.....	English	A, 3; W, 3; S, 3
Anne Whitmer.....	English	S, 1
H. W. Widener.....	English	A, 2
O. E. Williams.....	Eng. Drawing	A, 2

work, personal direction of gifted and retarded students, and improvement of teaching by more concreteness of the subject matter were the principal advantages obtained. Disadvantages were the time required of instructors and students, the bad effect of compulsory conferences, and the danger that interviewing may become a routine, burdensome matter.

The success of the interview sections has encouraged me to continue them even more extensively next year.

#### SURVEY OF ENGINEERING

The Junior Dean attended the weekly survey of engineering lectures, presiding during the Winter and Spring quarters. Aside from its value in vocational guidance, the survey course is important for the cultivation of class spirit, for close contact of the Dean and Junior Dean with the first-year men as a body, for making general announcements, and for soliciting the opinion of the class on various matters.

At the survey lectures the students have an opportunity to see and hear the Dean and the chairmen of the departments. At the conclusion of the lectures those especially interested gather around the speakers. There is always an invitation for the students to call on the chairmen in their offices, and I have found in my personal interviews that they avail themselves of this privilege.

As last year, the answers to the questionnaire at the last period showed that a great many of the students had already made up their minds regarding the work that they plan to follow, and the survey lectures served to confirm them in their choice and give them that peace of mind that comes from certainty. Of 377 answering the question as to their choice of the branch of



engineering they desired to follow, 289 stated that they were fully decided, 65 were reasonably sure, while only 23 were undecided.

Dean Hitchcock delivered twelve lectures at the survey periods throughout the year. The subjects, some given on two successive weeks, were "Welcome," "Rules and Regulations," "Grading and the Point System," "How to Study," "Features of Engineering Interest in and near Columbus," "Characteristics and Qualities of the Engineer," "History of Engineering at Ohio State," and "Engineering Interests Throughout the World."

The other talks, descriptive of particular branches of engineering, were given by the following professors: C. E. Sherman, H. E. Nold, F. W. Marquis, E. E. Dreese, J. R. Withrow, A. S. Watts, C. St. J. Chubb, D. J. Demorest, John Younger, Alpheus W. Smith, and Clyde T. Morris.

#### ENTRANCE CONDITIONS

In my interviews with the freshman engineers, I have been impressed with the great number of students who have entrance conditions, and with the trouble caused by these deficiencies. Failure to enter the College of Engineering without conditions interferes with the sequence of studies in the curricula, thereby lengthening the students' stay in school and entailing additional financial outlay. The cost of instruction has also been increased by making it necessary for subjects of high-school level to be taught at the University.

The ideal, all students entering without conditions, will, of course, never be attained. When one considers, however, that nearly 50 per cent of our students are conditioned in one or more subjects, the problem is seen to be one requiring immediate study, and, if possible, a remedy.

The Entrance Board's reports for the past five years show the following deficiencies of students entering the College of Engineering:

	Year Ending June 30				
	1926	1927	1928	1929	1930
Algebra .....	86	112	60	71	89
Plane Geometry .....	3	14	1	1	2
Solid Geometry .....	100	146	89	105	122
Physics .....	57	80	43	58	85
Foreign Language .....	89	95	73	68	85
Total Conditions .....	335	447	266	303	383
Number of Freshmen Conditioned .....	221	268	217	226	251
Total Freshmen .....	493	557	481	468	523
Percentage Conditioned .....	44.0	48.1	45.1	48.3	47.9

Two years ago, at the request of the University Examiner, I prepared a statement of requirements for entrance to the College of Engineering, even suggesting the sequence of studies in the high school. This statement was given to the Ohio Department of Education for distribution to the high schools and is included in the forth-coming bulletin of the School of Mineral Industries.

Entrance requirements for all the colleges should be a part of every University publication on pre-college vocational guidance. The great difficulty is to get information of this kind to the pupil early in his high-school career. Check of a questionnaire given to our freshmen at the request of the personnel

department of Wittenberg College showed that about three-fourths of these boys had been looking forward for three or more years to studying engineering. Their high-school advisers should have given them full information regarding entrance requirements.

In my interviews with the students during the coming year I plan to make a complete study of the reasons for entrance with conditions.

At the June, 1930, meeting of the Society for the Promotion of Engineering Education, the results of a study of 83 engineering schools showed in those schools, 3,041 freshmen admitted with conditions in a total of 17,840 admissions, or 17 per cent. The subjects in which these students were conditioned were not given, so the figures are not exactly comparable with those at Ohio State. It seems safe to assume, however, that the average entrance requirements in the 83 schools studied are as high as at Ohio State. At these 83 schools, then, only about one-sixth of the students start their college career with the discouraging feeling that they are not completely prepared for their new venture, while at Ohio State nearly half the freshmen are set behind the mark at the beginning of the race.

#### ENCOURAGEMENT OF SCHOLARSHIP

Armed with the high-school records, performance in the University tests, and other information, the Junior Dean was in an excellent position to encourage those students whose prospects for high scholarship were good. Phi Eta Sigma, the freshman honorary society, was brought to the attention of each one, and the entrance requirements of that organization were explained. While Phi Eta Sigma was mentioned during Freshman Week, I found that it was hazy in the minds of many. After the mid-quarter reports were received, I went over the probable grades with the students who came in for interview, actually figuring the point-hour ratios on the basis of the reports and urging those who were above Phi Eta Sigma requirements to maintain their scholarship and encouraging those who were slightly below to put forth a little additional effort.

In the Autumn Quarter 33 of the engineering freshmen became eligible for Phi Eta Sigma, and at the end of the Winter Quarter three more men had made the cumulative point-hour ratio to entitle them to election.

I have seldom recommended increased scholastic load for our brilliant students, but rather suggested to them collateral reading and participation in broadening activities. Those who are inclined to be bookish are urged to cultivate the social amenities, and mingle with their fellows. At the close of the Autumn Quarter, after the elections to Phi Eta Sigma, I found that the 33 engineers chosen had been participants in high-school activities, sometimes in as many as six of a major character. I have observed, also, that quite a number of our best students are busy in the extra-curricular activities of the University.

In a few cases students of exceptional ability have been permitted to schedule extra courses, but only after review of the case by the Executive Committee of the College.

To give encouragement and recognition to those who fell short of the scholastic requirements of the honorary society, 83 engrossed certificates of merit were awarded at the end of the Autumn Quarter to the 33 Phi Eta Sigma men and 50 additional students whose point-hour ratio was 3 or better.



At Survey of Engineering I announced these awards, and encouraged the men to strive for a certificate, even though their marks for the preceding quarter were as low as 2.5 or even 2. I felt that in our eagerness to select the super-student and in our solicitude for the student who is scarcely able to pass his work, there was danger that the great middle class, that which many times furnishes our most successful college graduates, might be neglected.

The number of awards for the year was: Autumn, 83; Winter, 100; Spring, 73.

The certificates, printed on five- by three-inch cards, read as follows:

THE COLLEGE OF ENGINEERING  
The Ohio State University

To.....  
*You were among the 73 Freshman Engineers out of an enrollment of 426 who made a point-hour ratio of three or better for the Spring Quarter, 1930.  
We congratulate you on your scholarship*

.....  
Junior Dean.

I believe that these certificates were a distinct incentive to scholarship. Through the cooperation of Mr. J. E. Pollard, Director of the University News Bureau, stories of the awards with lists of those receiving the honor were furnished to Ohio newspapers, and were widely printed over the State. The many clippings received reflected the pride of the different communities in the success of local boys at the University.

REMEDIAL WORK

Besides firing the brighter students with ambition, encouraging the middle class, and trying to keep the less gifted from falling behind, the Junior Dean has to devote much time to working with those who are actually in difficulties and are reported as failing, others who are on probation, and still others who are out of school.

In the first friendly interviews there is an attempt to avert disaster from those whose records indicate danger of failure; lightening of schedules, improved habits of study, reduction of working hours, and changed living conditions are often advised. The mid-quarter reports are important danger signals. The report form devised in the College Office is reproduced on the following page.

While the most common use of this form is for mid-quarter reports on probationers, it is used in collating information on the work of any student at any time.

After the reports are received from the instructors, the probationers reported low in any subject are called into the office for interview.

During the year I have made it a point to interview every freshman who applies for permission to drop any subject from his card. Each case is investigated and if circumstances warrant, the reduced load is permitted. Quite often, however, a desire to drop a subject is based on discouragement or personal difficulties; in many such cases suggestions are offered to remedy the condition and the student is encouraged to continue in the course. Some-

COLLEGE OF ENGINEERING  
THE OHIO STATE UNIVERSITY  
REPORT TO JUNIOR DEAN

Name of student \_\_\_\_\_ Date \_\_\_\_\_

Department \_\_\_\_\_ Course No. \_\_\_\_\_ Hours \_\_\_\_\_

Probable grade at end of quarter.....	A B C D E	Attendance at lectures and quizzes.....	A B C D E
Mid-quarter examinations.....	A B C D E	Attendance at laboratory, shop or drawing room.....	A B C D E
Written work other than examinations.....	A B C D E	Grade of work in laboratory, shop, or drawing room.....	A B C D E
Quiz .....	A B C D E	Handicaps {	Works for self-support
General attitude			Foreign student
toward work.....	A B C D E		Too heavy schedule
			Too many student activities
			Poor health

Remarks : \_\_\_\_\_

\_\_\_\_\_  
Instructor's signature

times it is wise to discourage the habit of dodging difficult courses, and to complete work in a required course, even though failure results, may be more advantageous than dropping the work. Particularly in fixed curricula with many prerequisites, postponement of courses makes irregular schedules, lengthens the time that must be spent in school, and is generally expensive.

I take this opportunity to commend the proposed revision of the University rule regarding the counting of points for all work undertaken. When a student fails a required course and is compelled to repeat it, he should not be penalized by being charged with points for the hours for which he received no credit.

The Junior Dean has been in sympathy with the work of Mrs. Luella Pressey in conducting the remedial reading classes in the Autumn Quarter and the course for probationers in the Winter Quarter. I made several visits to these classes. In my personal interviews with our engineering freshmen I talked to a number of those enrolled in these classes, and with few exceptions their comment was favorable.

In order to take care of the many entrance deficiencies in solid geometry a new course, Mathematics 401, five hours, solid geometry, was given this year for the first time.

Beginning in the fall of 1930, the freshman mathematics sequence will be changed from trigonometry, college algebra, and analytical geometry to college algebra, trigonometry, and analytical geometry. Judging from my observation of the difficulties of many freshman students, I believe that this changed order will be an improvement. In the first quarter of University work when everything is new and strange, the college course in algebra,



to some extent a continuation of the preparatory courses in that subject, will help to put the student on more familiar ground.

Another step toward more personal relations was the opening of the conference room, with an instructor in charge, by the department of mathematics. Here students weak in mathematics, whether on probation or not, could meet to discuss their work and receive assistance.

#### S.P.E.E.

For several years the Society for the Promotion of Engineering Education has conducted summer schools for teachers of engineering subjects. The purpose of these schools is exchange of ideas and improvement of teaching. Such a school in engineering drawing and descriptive geometry was held this year at the Carnegie Institute of Technology, and was attended by about a hundred instructors from all over the United States. At the invitation of the Director of the Summer Schools I became a member of the faculty, and gave a combination lecture and laboratory demonstration of freehand lettering before the "students."

Professor T. E. French was chairman of this school at Carnegie Institute and participated in the program. Other instructors from Ohio State who attended were J. M. Russ, L. D. Lutzenberger, and J. V. Otter. Attendance at the school in engineering drawing indicates a desire to improve teaching in a subject in the junior area, and is greatly to be commended.

#### ENGINEERS' DAY

In a spirit of friendliness, and feeling, perhaps, that the freshman lacked cohesion and *esprit de corps*, the Engineers' Council this year unsuspectingly invited the first-year students in Engineering to participate in the celebration of Engineers' Day by entering a float in the parade. The prize for the best float was a silver loving cup, suitably engraved. Inspired by Dean Hitchcock's Survey of Engineering talk on the aims and purposes of Engineers' Day, the freshmen voted to accept the invitation, and, aided and abetted by the Junior Dean, organized their forces, collected funds, drew up plans and specifications, and built and decorated a float bearing the appropriate name "The Freshman Engineer." Thanks to their efforts a large, handsome silver cup now graces the office of the Junior Dean.

#### UNIVERSITY WORK AND ACTIVITIES

A number of activities in addition to the personnel work have been pleasant and profitable.

During the year I have served as Secretary of the Junior Council at its thirty-two meetings, one of which was the two-day conference at Mansfield, May 8 and 9. These weekly meetings have enabled us to exchange experiences and receive much help from one another. The minutes of the meetings, in two mimeographed booklets, are a valuable record of our experiments and successes during the year.

The appointment in the fall of 1929 of Professor L. D. Jones as secretary of the College of Engineering and of the Executive Committee of that College relieved me of two duties that I had carried for six years, and enabled me to devote much more of my time to interviewing freshmen. I should like to commend Mr. Jones for his efficiency and helpfulness.

I have continued to be a member of the Executive Committee and have

appreciated the cooperation of that body and the confidence with which they have at times referred cases of readmission to the Junior Dean with full power to investigate and act as his judgment dictated. There has been, during the year, a greater tendency than in past years to have the students present their cases in person before the Committee.

The meetings of the supervisors of teaching in the junior area have stimulated discussion which brought out a number of interesting opinions. Such a study of presenting the subjects cannot help but bring about an improvement in instruction.

Freshman Week afforded me my first opportunity to get acquainted with our new students of last year. The parents' meeting in the chapel and the reception that followed at the Faculty Club promoted confidence on the part of citizens who are depending on the University for the training of their children. At the reception a number of parents of our freshmen expressed to me their appreciation of our personal interest in the students, in some cases giving me the name of a student and requesting me to "be sure and have a talk with my boy."

Having the Junior Dean in his office for consultation during Freshman Week is certainly to be commended. I had a number of conferences with students and their parents during this period.

Freshman Week appears to have become a permanent fixture at Ohio State University, and in the light of the Evaluation Committee's reports needs no defending by the junior dean. The changes planned for next year will make Freshman Week even better.

A number of speaking engagements have enabled me to explain our personal work with students to our alumni and others who were interested in the training of engineers. Just before school opened in 1929, I spoke to a selected group of freshmen attending the Y.M.C.A. camp near Bellefontaine. The Junior Dean was on the program for talks at the parents' meeting and college night reception during Freshman Week. In January, at the invitation of Dean Hitchcock, I reviewed the work of the junior deanship before the faculty of the College of Engineering. In the early fall I addressed an alumni gathering at Dayton, and in December was the campus representative at the Ohio State Day celebration at Pittsburgh. In February I was the luncheon speaker for the Engineers' Club of Columbus, describing the work of the Junior Dean in the College of Engineering. Last October I spoke on "Engineering as a Career" before the boys and girls of the Four-H Clubs of Ohio. I gave talks at the annual banquets of Phi Eta Sigma, the Engineers' Council, and Texnikoi.

Mrs. Turnbull and I repeated our pleasant experience as chaperons for the Scarlet Mask tour during the Christmas holidays. We were honored with membership in that organization. I have been pleased, also, this year by election to honorary membership in Phi Eta Sigma and Texnikoi.

With J. M. Weed of the Engineering Experiment Station, I continued as writer of the Engineering College notes for the *Ohio State Monthly*.

By appointment of President Rightmire I represented the Ohio State University at the inauguration of W. E. Wickenden as President of Case School of Applied Science in Cleveland.

During the absence of Dean Hitchcock in February and March, I presided at the monthly meetings of the Engineering College faculty, and represented the Dean at the Winter Quarter convocation.



## COLLEGE OF LAW

Dean, H. W. ARANT

The enrollment for the past two years has been distributed as follows:

	1928-29	1929-30
Autumn Quarter.....	297	307
Winter Quarter.....	278	296
Spring Quarter.....	261	258

It will be seen from these figures that there has been a slight increase in average enrollment in the College of Law. Such increase as has taken place has occurred in the midst of an attempt gradually to establish higher standards. Most of the elimination for scholastic deficiency very properly takes place at the end of the first year. Many of the more obviously misplaced students become discouraged and eliminate themselves before the end of that year. This accounts for the most part for the constant shrinkage in the size of the student body as the year progresses. In the year 1928-29, there were 131 students in the first-year class at the beginning of the year. At the end, 107 participated in the final examinations. The corresponding figures for the present year were 147 and 123. Notwithstanding the desire of the faculty to raise standards as rapidly as possible, it believes that the Law College must justify its existence to the taxpayers by making the largest contribution possible to the improvement of the legal profession in our State. How to do this is not a simple matter. The faculty might raise the requirements for entrance even higher or more ruthlessly eliminate for scholastic deficiency. But it is fairly certain that either step would result in driving many young men into poorer schools for their training so long as it is possible, under the rules governing admission to the practice, to secure a training that will be recognized. For these reasons, the faculty has been hesitant to exclude any student who appears to have capacity to comply with our requirements for graduation. This has resulted in some liberality in reinstating students at the beginning of the second year, with the expected consequence that a goodly percentage of them will have to be dropped during the year. This is the course of patience and may be open to some criticism, but it is due to the reluctance of the faculty to drive any student into an inferior school so long as there is substantial hope that he can meet our minimum requirements for graduation.

### FACULTY AND CURRICULUM CHANGES

Professor Robert E. Mathews, on leave last year as a visiting professor in the Columbia University Law School, returned to his work at the beginning of the present year. Professor Harry W. Vanneman, who was visiting professor last year, has been permanently appointed to the staff and, in the opinion of the faculty, has substantially strengthened it. Professor Joseph M. Cormack, who was a visiting professor last year, accepted an appointment to the faculty of the College of Law of the University of Southern California. The position vacated by him was filled during the present year by Visiting Professor Lester W. Feezer, a member for the past seven years of the Uni-

versity of South Dakota law faculty. Mention was made in the 1929 report of the permanent appointment of Professor Silas A. Harris, who substituted for Professor Mathews during his leave of absence. His appointment was made possible by the creation of an additional professorship in the Law College in the spring of 1929. His eleven years of experience in the practice and his subsequent experience as a teacher make an ideal preparation for teaching the Procedure subjects. During the spring, leaves of absence were requested by Assistant Professors William H. Rose and Norman D. Lattin, the one desiring to do graduate work in the Yale Law School and the other in the Harvard Law School. These requests were granted and substitutes have been engaged. Assistant Professor Arthur T. Martin, a graduate of our own class of 1929, who was elected to the Order of the Coif and received the J.D. degree, is to take Professor Rose's work. He spent the present year in graduate study in the Columbia University Law School, specializing in Real Property. To take over the work of Professor Lattin, Associate Professor T. C. Billig has been engaged. He is a graduate of Geneva College and holds an M.A. degree in Economics from the University of Pennsylvania. He has two degrees from the Yale Law School, has had two years' experience in practice and two years' experience divided between Washington and Lee University and Cornell University. The position filled during the past year by Professor L. W. Feezer is to be filled by Professor John E. Hallen. His degrees in both Arts and Law are from Yale. He has had experience in practice in Connecticut and New York and has had nine years' experience in teaching divided between the University of Kansas and the University of Texas. He enjoys the reputation of being an excellent teacher and will greatly strengthen our faculty.

The increase of the faculty to eleven members, by which the retention of Professor Harris was made possible, has been of especial significance. It enabled us to offer new courses in Taxation and Legislation, and seminar courses in Trusts, Negotiable Instruments, and Constitutional Law. It has also made possible the University's cooperation in some important research. Some very important investigations were made for the Ohio State Bar Association's Committee on the Revision of the Probate Laws of our state. This work was primarily under the direction of Professor Robert E. Mathews, some assistance being contributed by Professors Rose, Simes, and Laylin. The Committee's public expressions indicate their appreciation of the thoroughness and promptness with which this work was done.

Some research projects of a new type that may well be of substantial significance have been undertaken in the field of Procedure by Professor Harris. He has assumed direction of a study of automobile accident litigation in the city of Dayton for "The Committee to Study Compensation for Automobile Accidents" under the auspices of the Council for Research in the Social Sciences of Columbia University, of which Mr. Shippen Lewis of Philadelphia, Pennsylvania, is Director. This study is national in scope and involves inquiry into the legal as well as the economic and social aspects of such litigation. It is expected that this study may reveal a need for legislation governing automobile accidents somewhat similar to workmen's compensation acts, under which the imposition of liability upon operators of automobiles may not be conditioned upon fault. Professor Harris has also assumed direction of an investigation of criminal litigation in the Federal Courts for the Northern District of Ohio, for President Hoover's National Commission on Law Observation and Enforcement. This work was begun about the middle of the year,



and plans are now completed to expand this study to include the Southern District of Ohio and to include civil litigation as well as criminal litigation, the study now being intended to cover all the litigation in the Federal courts for a period of five years. Professor Harris is taking an active part in the survey of the administration of justice that is being made on a state-wide scale in our own state under the auspices of the Judicial Council of Ohio, the Ohio State Bar Association, and the Institute for the Study of Law in Johns Hopkins University. He has participated not only in the planning of this study, but has charge of it so far as it relates to litigation in the Courts of Appeals of the State and the Supreme Court.

The enlargement of the faculty has also made possible an experiment in the introduction of seminar courses in law. The absence of a Law Review in the Ohio State University leaves the student of exceptional ability without adequate opportunity to exercise it. It was primarily to provide for students of this type a chance to do work commensurate with their ability that the faculty determined to introduce a few courses that would require a different type of work and call for a higher order of ability than that which is required for the successful study of an ordinary case-method course. Seminar courses were offered in the subjects of Trusts, Constitutional Law, and Negotiable Instruments. These courses, though still looked upon as experimental so far as the details of conducting them are concerned, are believed by the faculty to have demonstrated unquestionably their utility. The necessary limitation upon enrollment in them appears to operate as an incentive to scholarship. Students seem to regard enrollment in one of these courses as a mark of distinction. The special value of the experience in the type of work required in these courses is not open to question. It has seemed also especially stimulating to those members of the faculty in charge of the courses and to others who at times participate in the discussions. It is a matter of regret that there is a practical limitation upon the amount of this type of work that can be offered. Irrespective of the student's ability, the faculty are decidedly of the opinion that there should be an opportunity for every student to take at least one such course. At the present time, it is possible to provide such opportunity only for the exceptional student. An ordinary student would profit proportionately from the taking of at least one course of this type. Many of the classes in the Law College are too large to be effectively handled under the case method. The first-year class at the beginning of the year was composed of two sections of about seventy-five students each. Some of the second-year and third-year classes are considerably larger than this. It requires no more than a statement of this situation to convince that it necessarily involves a sacrifice in the effectiveness of teaching. There should be three sections in the first-year class, and some of the upper classes should be divided into two sections.

The expansion of program described above has fully absorbed the increased man-power provided by the enlargement of the faculty above referred to. There has, therefore, been possible no diminution of the teaching load. There is no disposition to maintain that a uniform reduction would be desirable or even justifiable, but in certain cases some reduction would be exceedingly profitable. Not all teachers are alike in ability or interest. Some are especially gifted in and almost solely interested in the classroom aspect of teaching. Others have in addition considerable capacity for the genuine interest in different types of research. Such instructors should have more time available

for this form of activity than our present program permits. It would make possible not only the improvement of the instructors' scholarship and the carrying on of some research projects of practical value to the state, but it would contribute to the improvement of the standing of the school as an institution.

The faculty has been giving serious consideration to the problem of more closely integrating the law with the other social sciences. The need is admitted, but the methodology is by no means simple. The experiments that are being made in two or three schools are being watched sympathetically and with great interest. No departures in this direction, however, have yet been made other than the constant emphasis, in the discussion of legal principles and their application to the economic, psychological, or sociological assumptions upon which the principles rest. How practical it may be to enter into an inquiry as to soundness of such in connection with each legal principle considered does not yet appear. It must be apparent, though, that to the extent to which such matters are discussed others are crowded out. The general view now obtains that lawyers get no more of the traditional kind of training than constitutes a satisfactory minimum. Until the course can be lengthened, there must be caution about curtailing the ordinary type of training so long as the practice requirements of the profession are as they are. Mention is made of this matter merely to indicate that the faculty feel that there are some practical limitations upon the amount of innovation that can be made in a three-year course that must continue to justify itself principally by its ability to equip men to meet the practical requirements of the profession.

#### THE LIBRARY

During the present year, a special grant of \$15,000 was made for the purchase of books for the Law Library. At the time this grant was requested it was thought that it would be adequate for the immediate needs of the Law School. The increased emphasis on research, however, is disclosing needs for material that were not at that time sensed. The attempt on the part of our faculty to go farther in their studies than mere legal precedent, has disclosed a need for material in related fields that was not so clearly felt even a year ago. There is a special need for a good deal of periodical material in fields not strictly legal. The amount appropriated annually for the support of the Library should be at least doubled.

The need for additional shelf space in the Library is beginning to be felt. In another year there will be a serious problem unless steel shelving is installed in the stack room, inasmuch as that is the only possible means of expanding our shelf space.

#### RESEARCH ASSISTANTS

The experience of two or three members of the faculty who are engaged in research has led to a conviction that a small amount of money appropriated annually for research assistants would greatly facilitate the completion of certain projects that are in progress or could be undertaken by members of the faculty. By means of these funds students could be tempted to devote an additional year to study. The thought of the faculty is that the number of such assistants should be rather small to begin with, say three or four, and that such assistants should devote approximately one-half of their time



to research, being permitted during the rest of their time if they desire, to take work from the ordinary course of study. The compensation for such work should be approximately what it would take to pay the student's expenses for a year, say \$750.

#### BUILDING NEEDS

Attention has been called heretofore to the need for lockers. Each student should have available a locker for the protection of his books and wearing apparel that must be brought into the building but not brought into the classrooms. The number of overcoats stolen each year appears to increase, and oftentimes produces a grave problem for the unfortunate student. There is a serious need for a room in the building in which students are permitted to smoke. This appears to be the solution for the problem of smoking, and such a room could also serve as a place in which students can meet and discuss legal problems. There has been felt for some time a definite need for such a room. New floors are needed on the second and third stories of the building. They are worn uneven and are unsightly, in addition to producing, in places, an unreasonable amount of noise when in use.

## COLLEGE OF MEDICINE

*Dean, J. H. J. UPHAM*

### ENROLLMENT

During the year there were enrolled in the College of Medicine 100 freshmen, 70 sophomores, 79 juniors, and 61 seniors. Of these 297 were men and 13 women. Sixty-two received the degree of Doctor of Medicine, 3 at the August convocation, 1 in December, and the remaining 58 at the June commencement. Of the last named one was conferred as a posthumous degree in recognition of the scholarship and character of the recipient, Robert Snipes, who died six weeks before graduation.

The matter of selecting candidates for the freshman class has been a matter of considerable concern to the Entrance Board in view of the large number of applicants and the limited number that can be accepted. The Board has been studying the methods in vogue in other universities and has evolved a method of selection which takes into account not only the grades in premedical instruction but also the character and personality of the applicants, geographical distribution, and the recognition of other colleges of the State. The results of such selective action seem to be already apparent in the excellent showing of the students admitted and the lowering of the per cent of failures in the past two years. The Faculty of Medicine deeply appreciates the active cooperation and interest of the Entrance Board.

It is to be regretted that with the increasing number of Ohio students seeking admission, the freshman class cannot be enlarged, but this is impossible with the present physical plant and the existing number of teachers. Only the completion of Hamilton Hall and increased appropriations for more teachers will permit accepting a larger number of students.

### FACULTY CHANGES

Miss Margaret Reilly, B.S., R.N., was appointed Superintendent of Nurses in the School of Nursing and has continued to give excellent service. On the resignation of Mr. Charles E. Findlay, Superintendent of the Hospital May 15, Miss Reilly was appointed Acting Superintendent of the Hospital for three months.

The authorization by the Board of Trustees of the establishment of a Department of Medical and Surgical Research has met with very general approval. Dr. Charles A. Doan has been appointed Professor and Chairman of this Department, Dr. Bruce K. Wiseman, Assistant Professor, and Dr. Samuel Mercer, Assistant. The personnel of this department offers very hopeful possibilities for the development of research in the college and materially strengthens the faculty.

The Department of Pathology has considerably extended its field of usefulness by affiliation with the other hospitals of the city and the addition of the pathologist at White Cross Hospital to the teaching staff.

### TEACHING

As a result of the closer supervision of the teaching and the better personal contact with the students, as indicated in the Report of last year, there



has been a marked improvement in the morale of the student body and a greater interest in their classwork. This is evidenced by the lesser number of failures in the first and second years and by the smaller number of students withdrawing from the college.

The amount of clinical teaching material in the Starling-Loving Hospital, St. Francis Hospital, the Children's Hospital, and the State Street Dispensary has been greater than formerly, but it requires careful management to provide sufficiently for the growing needs of the college. There is a great need for increase which can be met only by enlarging the facilities for clinical patients, chiefly in Starling-Loving Hospital and the State Street Dispensary.

#### RESEARCH

The reports from the various departments show a very considerable amount of research work accomplished by many of the members of the faculty. It is to be expected that a marked impetus will be given to this line of endeavor by the new Department of Medical and Surgical Research. The accompanying list of publications by members of the faculty is a very gratifying index of the active interest in adding to scientific knowledge.

#### ADMINISTRATION

The Dean would report that in addition to his administrative duties, he has given two courses of lectures to the senior class and one to the freshman class. He took part in "Ohio Day" activities by addressing the Alumni organization in Lima, and has addressed several medical societies and hospital organizations on medical topics. He would report the establishment of cordial relations with the various classes and an increasing number of consultations with students over their personal and scholastic problems.

#### MEDICAL SHOP

The report of the medical shop shows a gratifying activity and the very vital need which the shop fulfills. The prompt and efficient service of Mr. Carl Effler and his assistants is greatly appreciated by the departments.

#### ORTHOPEDIC SHOP

The establishment of this shop in the hospital continues to be very satisfactory. The shop, which is more than self-supporting, is establishing itself as an integral part of the hospital activity and providing an increasingly wide service to the community.

#### DEPARTMENT OF ANATOMY

The reorganization of this department effected last year has proven very satisfactory, although some further changes have been found necessary as indicated in the accompanying detailed report. The additions to the personnel have enabled the instructors to give more time and attention to the individual students, with resulting marked improvement in their scholastic showing. In addition to the heavy teaching assignments, the members of this department have shown a high degree of activity in research. This is indicated by the accompanying list of twenty-three actual publications in current scientific literature.

## DEPARTMENT OF MEDICINE

The teaching in this department has been carried on during the year in a thoroughly satisfactory manner. There were no major changes in instructors and but few minor ones. The personnel is well adapted and well assigned to the various divisions so as to correlate very satisfactorily the department work as a whole. Practically all the instructors in this department are on part time service. They universally give of their time and service out of proportion to the salaries and honoraria given them, and it is to be hoped that the budget of this department may be increased so as to make the salaries more commensurate.

This is true not only of this department but also of most of the departments of the College. In spite of this, however, it may be confidently asserted that the quality of teaching is of an excellent character, and the graduates of this College are thoroughly prepared for their professional careers. In fact, while too much stress should not be laid upon examination grades, it is interesting to know that in the recent June examination of the State Medical Board, the number of students from this College exceeded that of any other institution and the average grade was higher than that of any other Ohio medical college.

A large number of the members of this department have prepared papers on medical topics and addressed medical societies. It is a pleasure to report a steadily growing tendency for county and district medical societies to apply to the Dean to supply essayists for their meetings.

## THE STATE STREET DISPENSARY

Dispensary teaching has a recognized and growing place in the curriculum. It brings the student in direct contact with patients and supplies the practical demonstration of the application of the theory and practice of medicine. The growth of this dispensary has been remarkable. In 1927-28 the total number of visits was 26,888; in 1929-30, the number was 30,777. This means a very large and varied amount of clinical teaching material supplied at a minimum of expense to the college. I would emphasize the statement of the director, Dr. E. J. Gordon, as to the inadequacy of the present quarters. "Patients not infrequently have to line up outside the building; the waiting-rooms are constantly overcrowded and the examining and treatment quarters exceedingly cramped. I would strongly urge a survey of the present building by the University Architect at an early date."

## DEPARTMENT OF OBSTETRICS

This department report shows a gratifying activity. Each student this year conducted more than 12 normal deliveries, gaining thereby invaluable practical experience. The teaching in pre-natal and post-natal care has also been greatly extended through the dispensary.

There is a great need for more adequate quarters, as in all other departments of the dispensary, as already mentioned.

## DEPARTMENT OF PHYSIOLOGY

Special attention is directed to the accompanying detailed report of this department showing a total of seventeen separate scientific investigations completed and accepted for publication in various scientific journals. This has been done in addition to a full schedule of teaching and speaks eloquently for the



devotion and spirit of investigation of this department. The greatest need of this department is in expansion of the corps of instructors for closer supervision of students and the grouping of students in smaller sections.

#### PHYSIOLOGICAL CHEMISTRY, PHARMACOLOGY, AND MATERIA MEDICA

Some minor changes in the curriculum were made to accommodate the increasing number of non-medical students desiring to take Physiological Chemistry. Separate courses, 601 and 602, were organized and offered as electives to medical students, but chiefly for graduate students, seniors in chemistry, and technicians. Beginning with the Autumn Quarter, these courses will receive different numbers so as to avoid confusion in granting medical credits.

The changes in the large chemical laboratories have enabled the department to teach all its courses in its own laboratories, thus relieving the congestion and confusion formerly resulting from the necessity of teaching pharmacology in the physiology laboratories. The great need of this department is in more equipment and more instructors so as to permit of smaller sections and closer personal supervision.

Excellent research work has been carried on during the year, and important contributions to the literature made, as indicated in the accompanying detailed report.

#### DEPARTMENT OF PATHOLOGY

The report of this department goes far toward establishing the claim that this year has been the most successful one in the history of the department. The teaching courses have been increased in number, and amplified in scope, and the interest of the students has been greater than ever before. The number of autopsies is steadily increasing, greatly augmenting the amount and value of teaching material.

The continued success of the clinical pathological conferences is an outstanding achievement. The establishment of laboratories under full-time technicians at St. Francis Hospital and the Children's Hospital has marked a great advance. The working agreement with the other hospitals of the city is a personal tribute to Professor Scott.

The participation in medical society programs is growing in favor and bringing much favorable comment. The report of the number of scientific contributions to the literature is evidence of the enthusiasm and devotion of the members of the department.

The number of tests and pathological examinations listed, over 48,000, illustrates the enormous amount of routine work accomplished in addition to the instructional courses. This department under the leadership of the Chairman, Professor Ernest Scott, is achieving a high reputation throughout the State, and the exhibits arranged by the members of this department for the meetings of the American Medical Association have excited so much favorable comment as to greatly enhance the reputation of the University throughout the country.

#### DEPARTMENT OF PUBLIC HEALTH AND HYGIENE

The accompanying detailed report of this department gives a vivid impression of the wide field covered and the excellent service rendered. The courses include instruction to medical and non-medical students, and the increasing number of registrants of the latter type shows the growing interest in the subjects taught.

In addition to his active teaching program, Professor Hayhurst's contributions to the current literature are steadily enhancing his already established reputation as an authority on subjects of public health and industrial diseases.

Dr. James S. Wilson, Assistant Professor, divided his time between giving instruction in the medical curriculum, courses 604, 605, and 606, and acting as Director of the Student Medical Service (reported separately).

Mrs. Norma Selbert, Assistant Professor, gave instruction in elementary nursing, child health, and public-health problems to non-medical groups. There was a gratifying increase in the number of registrants for these courses.

The list of publications by members of the staff accompanies this report.

#### DEPARTMENT OF SURGERY

The teaching schedule of this department has been carried out as planned, all members of the teaching staff completing their assigned courses. The efforts to bring the students in closer contact with the patients have proven very beneficial. The amount of clinical teaching material has been greater than ever before, but still more is needed to provide greater variety and permit better selection of illustrative cases.

The increased activity of the members of the department in medical society meetings is very gratifying. In all, twenty-three papers were presented before county and state medical society meetings. This type of activity in my opinion is of great importance and value; it is in reality a University extension service in medical instruction and will go far toward establishing a leadership in this section of the state.

A list of the papers presented accompanies this report.

#### HOSPITAL REPORTS

The reports of St. Francis, Children's, and Starling-Loving University hospitals are appended. The greatest need of the last-named is a nurses' residence. The change made in the superintendency of the School of Nursing has had an excellent effect in the securing of nurses, but the present housing conditions are most inadequate and unsatisfactory.

The receipts from private patients during the past year have been greater than ever before, but the increase in number of clinical beds has materially augmented the cost of maintenance, so that a greater allowance for actual operating expenses must be provided.

Mr. Charles E. Findlay resigned as superintendent of the University Hospital in May, and Miss Reilly was appointed acting superintendent for a period of three months.

The Isolation Pavilion remains a source of anxiety as a fire menace and is inadequate. It is urged that some measures for the relief of this situation be made in the near future.

#### STUDENT MEDICAL SERVICE

The detailed report of the Director, Dr. J. S. Wilson, is appended and is evidence of the very great service this department is rendering the University. The cordial relations established with the local medical profession continue and are a tribute to the earnest efforts of the members of the staff and ethical standards maintained.

The question of finances for the support of this department is not satis-



factory. As originally organized the salaries of the staff were paid from the A-I Budget; this allowed the using of the major portion of the special laboratory fee for the actual maintenance of the department for the examination and treatment of students. This proved ample and gave grounds for the hope of expanding the service materially and returning to the students in actual service much more than could be expected from the fee collected. For the coming year, with the transfer of the salaries to the Service Budget, the strictest economy and probably some curtailment of the activities will be necessary if the present program can be carried out. It is respectfully urged that two items of expense are really unjustly charged to this fund. These are the treatment of military injuries and the care of graduate students who pay no fees. Both of these activities are normally University obligations, and the Dean agrees with the Director that they should not be financially charged to the student fund, especially if this impairs maintenance of the service. At present the service rendered is greatly out of proportion to the fee charged; similar fees in other institutions are much higher. I strongly concur in the recommendation of the Director that the special laboratory fee be increased to two dollars per quarter, as I feel that the students will receive still better service and even greater returns for their expenditure.

## DEPARTMENT OF ANATOMY

### TEACHING STAFF

Three new members, two assistant professors and one instructor, have been added to the teaching staff since the last annual report. They are as follows: Dr. Linden Edwards (University of Illinois), who during the past academic year has been responsible for Comparative Anatomy and courses in Physical Education; Dr. J. L. Wierda (Cornell), who filled the vacancy in Dental Gross Anatomy created by certain previous changes which were responsible for Dr. Baker's transfer to the Medical Gross; and Lawton Gerlinger, an instructor in Medical Gross Anatomy.

For reasons well known to you, it was deemed advisable for Mr. Edwards to assume charge of Dental Anatomy for the ensuing year, thereby replacing Mr. Wierda, whose services with the University terminated at the close of the past academic year. This change created a vacancy which was recently filled by Mr. P. B. Yates (Ohio University), whose time will be devoted mainly to courses in Anatomy prescribed in the Arts College. I may further state that Dr. Bigelow will have charge of Topographical Anatomy, replacing Dr. Britt.

### EQUIPMENT

During the past year, the Medical Gross Anatomy laboratory has been equipped with modern dissecting tables and numerous demonstrating models (joints of both extremities, perineum—male and female, skeletons, etc.) have been added—all of which greatly facilitates the teaching of Gross Anatomy. Requests have been made and granted for the following: a freezing unit for sectional work, an apparatus indispensable in the teaching of Topographical Anatomy, and two museum cases for the storage and filing of gross material (brains, models, and prepared specimens).

In connection with this report, I wish to call your attention to the necessary improvements under way in the morgue, which include water-proofing vats, painting walls and equipment, removal of useless material, and the

installation of a copper-lined tank for the preservation of pro-rata material and wet anatomical dissections used for demonstration purposes.

#### RESEARCH

In fairness to the department, this year should be considered as a formative year. Several of us, although familiar with the work in general, have had to offer courses for the first time. The preparation and organization of these courses have consumed considerable time which can be spent hereafter on research. Notwithstanding this handicap the department has published two papers and has several papers almost finished. These should be in the hands of the editors by the end of the Summer Quarter. A textbook in Anatomy for the use of students in Physical Education is now being prepared by Dr. Edwards. His contract with the Blakiston Publishing Co. calls for the delivery of the manuscript by the beginning of the next year.

Although the department has not scheduled courses in advanced work this summer, our laboratories will be open for members of the department who wish to continue their work during this part of the year. Those who will work on research problems this summer are: Dr. Baker, Dr. Knouff, Mr. Setterfield, Mr. Edwards, Mr. Yates, Mr. Palmer, Mr. Amstutz, and Miss Beard. Professor Landacre plans to visit the Anatomical Laboratories in the English Universities and to spend a few days at Kapper's Institute of Brain Research in Amsterdam.

#### PAPERS PUBLISHED OR IN PROGRESS

F. L. Landacre: The Relation of Age to the Number of Somites in the White Rat (with Amstutz), *Ohio Jour. of Science*, Nov., 1929; Major and Minor Sulci of the Sheep Brain, *Ohio Jour. of Science*, Jan., 1930; The Epi-bronchical Placodes of the White Rat (nearly completed).

R. C. Baker: Description of a Brain Lacking a Cerebellum (nearly completed); Studies in the Morphology of the Brain of *Amblystoma* Embryos (with Mr. Graves).

R. A. Knouff: The Behavior of the Lateral Ectoderm in the Development of the Peripheral Nervous System in *Rana* (nearly completed); Observations on the Development of the Neural Plate in *Rana*; Description of an Early Human Ovum (with Mr. Amstutz).

L. F. Edwards: Origin and Development of Taste Buds in the Carp (nearly completed); Textbook of Anatomy for Physical Education Students (To be published by Blakiston Co.).

H. E. Setterfield: Experiments on the Conduction of Electrolytes through Nervous Tissues; A Study of the Thalamamic Nuclei of the Sheep Brain.

H. M. Amstutz: The Relation of Age to the Number of Somites in the White Rat (with Dr. Landacre), *Ohio Jour. of Science*, Nov., 1929; The Development of the Ruminant Stomach; Description of an Early Human Ovum (with Mr. Knouff).

D. M. Palmer: A Study of a Group of Brain Tumors by Hortega's Silver Methods (carried out under direction of Dr. Scott); A Study of the Posterior Lobe of the Hypophysis by Hortega's Silver Methods (work beginning this



summer); Study of the Neuroglia of the Sheep's Brain by Hortega's Silver Methods.

P. Yates: Changes in the Lateral Line Ganglia during Metamorphosis (work beginning this summer).

G. O. Graves: Studies in the Morphology of the Brain of Amblystomia Embryos (with Mr. Baker).

L. Gerlinger: Description of a Human Monster.

Thelma Baird: The Development of the Interstitial Cells of the Rabbit's Ovary.

W. Z. Kling: Effect of Food Deficiencies on Tooth Development in the Rat (with Research Department, College of Dentistry).

### STATE STREET DISPENSARY

1. Included is a report of the various departments at State Street Dispensary for 1929-30. You will notice the increase in attendance in spite of the fact that we were torn up for painting and furnace installation for two months during the winter. This type of work should be done during the summer months.

2. The staff attendance and interest was excellent. The student attendance was excellent.

3. The needs of the dispensary are acute, since it is impossible to give service to patients and still do teaching in the cramped, dark, and unsanitary quarters we now have. To illustrate: in the department of medicine on many days we are forced to handle 30 patients with their relatives, 20 students, and 2 instructors—60 people in a space 18x18 feet and in the short time of 90 minutes. You, of course, can infer the type of work done under such conditions. The same holds true in other departments, especially in eye, ear, nose, and throat, in the venereal clinic, and in surgery. On many days patients are lined up on the outside while waiting to be registered, the line at times reaching almost to State Street. This is especially hard on the very sick, the old, and the babies. We have been severely criticized for this.

4. With the only free general dispensary in the community, there are fine opportunities both as a service to the indigent sick and as a means of teaching practical medicine to our students. The latter is now being emphasized by all our better medical colleges and by authorities on medical education. The dispensary affords by far the best and least costly teaching. While we have expended large amounts for buildings, equipment, and maintenance for other departments, we are spending almost nothing on this most important part of our college. Many of the leading colleges, aside from having adequate buildings and equipment, are spending from \$1.50 to \$2.00 per visit per patient. As nearly as it is possible to compute our per visit cost, it averages about twenty cents.

5. I recommend that a survey be asked of the University architect to determine our needs for expansion. It is my impression that at least \$250,000 will be needed for building and equipment. In the remodeled dispensary, a laboratory, an X-Ray department, and a nutritional clinic should be provided to serve the dispensary and St. Francis Hospital clinic.

6. I wish again to mention that our clerical help is not sufficient to maintain and cross-index our patient records properly.

## CLASSIFICATION OF DISPENSARY PATIENTS

Department	1927-28	1928-29	1929-30
Medicine .....	3,404	3,489	4,094
Surgery .....	1,933	1,848	2,419
E. N. T. ....	1,381	1,623	1,748
Eye .....	1,496	1,347	1,478
Dermatology .....	316	274	376
Neurology .....	264	171	245
Gynecology .....	483	429	569
Pediatrics .....	828	862	1,845
Orthopedics .....	331	274	327
Tuberculosis .....	168	128	123
Dental .....	19	644	412
Pre-Natal .....	1,576	1,749	2,664
Venereal .....	14,226	13,855	14,447
Totals.....	26,888	26,693	30,777

## RECLASSIFICATION

	New	Revisits	Total
1927-28 .....	5,152	21,736	26,888
1928-29 .....	5,497	21,196	26,693
1929-30 .....	6,775	24,002	30,777

Department	Summer	First Qr.	Second Qr.	Third Qr.	June	Total
Medicine .....	1,051	820	1,092	966	165	4,094
Surgery .....	589	373	760	624	73	2,419
E. N. T. ....	548	297	459	345	99	1,748
Eye .....	355	298	467	309	49	1,478
Dermatology .....	79	80	113	84	20	376
Neurology .....	60	49	80	49	7	245
Gynecology .....	115	107	192	141	14	569
Pediatrics .....	240	273	899	395	38	1,845
Orthopedics .....	80	55	95	87	10	327
Tuberculosis .....	40	22	35	21	5	123
Dental .....	182	166	64	Disc.		412
Pre-Natal .....	614	532	746	Feb. 1st		2,664
Venereal .....	3,943	3,391	3,080	3,484	579	14,477
Totals.....	7,896	6,463	8,082	7,145	1,191	30,777

## DEPARTMENT OF PATHOLOGY

## INSTRUCTION

The instructive work during the past year has progressed in a most satisfactory manner. The new lecture course, Pathology 600, proves to be a valuable addition to the sophomore course.

## AUTOPSY

The elective courses in autopsy work, minor problems, and in clinical pathology have all been well filled during the year, and the students of these courses have shown unusual interest and efficiency in their work. The course in post mortem technique was more than filled each quarter, and the number of autopsies during the year was increased to such a degree that each of the members of these elective groups was able not only to attend but also to assist



in from 10 to 15 autopsies each. The increase in the number of post mortems and the number of students desiring to elect this course makes a rather heavy burden upon the present teaching force of the department, so that it will be necessary during the coming year to delegate the autopsy work in a considerable part, at least, to younger members of the department. The fact that we have in the hospitals at this time residents who have had training in autopsy technique, will greatly facilitate this work. In addition to the work at the University and St. Francis hospitals, it will be possible this year to send groups of students to the White Cross Hospital, under the supervision of Dr. John H. Mitchell, who is now an instructor in this department.

#### CLINICAL PATHOLOGICAL CONFERENCES

The work in the clinical pathological conferences has been on the whole, highly satisfactory. There has been an increase in interest shown by members of the hospital staffs and by the students of the upper years in these meetings. The cooperation of the Surgical and Medical departments of the University Hospital has been very gratifying, and we wish to express our appreciation of the work of Drs. Dodd, Reel, and Taylor of the Surgical Service, and Drs. Nelson, Hatfield, and Gordon of the Medical Service. These men have always shown an entire willingness and enthusiasm in their cooperation and they have given discussions of the highest type. I wish at this time also to express appreciation of the work done in the Photographic Laboratory of the department and to commend Lester Hamilton for his interest and cooperation in the preparation of lantern slides and photographs, without which these clinical pathological conferences would be almost impossible.

The conferences at St. Francis Hospital were somewhat less satisfactory since the enthusiasm of the staff is not yet thoroughly aroused, but a sufficient interest was created to warrant continuance of the programs and to give encouragement that during the coming year much better meetings may be conducted there.

The department has also taken an active part in the pathological conferences at the White Cross Hospital, where again the enthusiasm and cooperation of the staff has been extremely gratifying, programs presented by members of the staff being of the highest order.

#### CLINICAL LABORATORY OF THE STARLING-LOVING HOSPITAL

The amount of work done in the laboratories of the University, St. Francis, and Children's hospitals has been very greatly increased during the year. At the University Hospital, the routine work is of such a volume that the present force is entirely occupied by it, and there is no one available to take up problems or carry out special interesting work desired by various members of the staff. There is a distinct lack in the service of the laboratory in this regard. Many interesting cases occur in this hospital that are well worthy of report in medical literature, but with an insufficient amount of laboratory work these cases cannot be written up for publication. It is recommended in the present budget that additional technical help be added to the laboratory, in order that this work be done, but this request was disallowed.

#### CLINICAL LABORATORY OF THE ST. FRANCIS HOSPITAL

At the St. Francis Hospital the laboratory has for the first time had the service of an all-time technician, in the person of Mr. Oscar Mottet, who has

rendered most valuable service and has taken active interest in the instructive work in the student laboratory sections. He has also supervised the laboratory work of the State Street Dispensary. I am very glad to report that for the next year Mr. Mottet has been appointed assistant in the Department of Pathology and can take still more active part in the instructional work.

The position of Resident Pathologist at the St. Francis Hospital was entirely successful under the administration of Dr. John H. Mitchell. Dr. Mitchell's success was such that during the latter part of the year he was selected to fill a similar position at the White Cross Hospital. His position at the St. Francis Hospital for the coming year will be filled by Dr. Aaron Canowitz. One of the difficult features of work at the St. Francis Hospital is the lack of a morgue, which necessitates the holding of the autopsies at the different undertaking establishments in the city. The undertakers have been very kind and considerate in allowing us the use of their rooms and have cooperated with us in every way, yet it is extremely inconvenient for the department, and the autopsies can be less thoroughly done than in a properly constructed morgue in the hospital.

#### CLINICAL LABORATORY OF CHILDREN'S HOSPITAL AND COLUMBUS STATE HOSPITAL

The Children's Hospital also has had for the first time an all-time laboratory assistant, Miss Mildred Lindsay, a graduate of the University, who has had several years training in laboratory work, being in charge. Miss Lindsay has done an excellent piece of work and has succeeded in establishing the laboratory as a necessary part of the hospital service. I wish to recommend that she be made an assistant in the Department of Pathology with salary supplied by the Hospital, as is now done in the St. Francis and White Cross hospitals. Another laboratory connection that has been established during the year is that with the Columbus State Hospital. For a number of years the department has been doing the autopsy work at this hospital and has derived great benefit from such service. During this year, however, a still closer cooperative arrangement has been completed, whereby the staff of the hospital agreed to make a joint study of the interesting neurological cases that may come to autopsy and to arrange the work that a complete clinical and pathological report may be made. I am very much pleased to announce that Dr. Harry LeFever, who has been with the University Student Medical Service, has become greatly interested in neurology and has volunteered to supervise the study of these cases from the neuropathological standpoint. Dr. LeFever has already taken post-graduate courses in neuropathology in the clinics of Dr. Harvey Cushing at the Peter Bent Brigham Hospital and of Dr. Dandy of New York City. He is spending the present summer at the Neurological Institute at the Mayo Clinic.

#### DEPARTMENT OF PHYSIOLOGY

In many respects the department of Physiology feels considerable satisfaction in reviewing its work for the year 1929-30. It is felt that considerable progress has been made in teaching problems, but perhaps more especially has the department reason to feel gratified because of its research activities during the past year.

A total of 17 separate investigations have been completed and have been



accepted for publication in representative journals of science. Articles have appeared in the *American Journals of Physiology*, *Physiological Zoology*, *Proceedings of the Society for Experimental Biology and Medicine*, *Journal of Nutrition*, and the *Ohio Journal of Science*. In addition to the papers already accepted for publication, the department members have six investigations completed and ready for submission to scientific journals. Not only does the department feel gratified because of the number of research projects completed, but likewise because of the quality of the work. Such research work has progressed more consistently during the past year than at any other time in the history of the department.

In addition to its research work, the department has taken active part in various scientific programs during the year. Two members of the department staff, Dr. Nice and Dr. Hitchcock, reported research projects before the International Physiological Congress at the meeting held in Boston last August. A total of seven members of the department staff were in attendance at this international meeting.

At the meeting of the American Physiological Society held in Chicago in March, 1930, the department was represented by four staff members and five graduate students. At this meeting, likewise, five papers reporting research work were read before the society. At the meeting of the Ohio Academy of Science held in Columbus in April, Dr. Nice of this department presided as chairman of the section of medical sciences. Three papers were presented by staff members before this section, as well as six additional reports given by graduate students.

It may be of some interest to briefly summarize the research activities of the individual members:

Dr. L. B. Nice has been in general charge of the graduate work within the department, has published one paper during the year, and has been co-author in the publication of seven other research reports.

Dr. F. A. Hitchcock has likewise published one paper as an individual project and has been co-author of three others.

Dr. E. P. Durrant has published two research reports and has at present three others completed and ready for publication.

Dr. D. W. Ashcraft and Mr. H. E. Hamlin have each published two reports in scientific journals.

The general field of investigation that has been followed in the above work is quite largely in the field of endocrine organs and metabolism, with some reports falling quite outside of either field.

The teaching activities of the department during the past year have been quite similar in character to those of the past two years. The department has been fortunate in having well-trained graduate and student assistants in its laboratories and has made no effort to change markedly the presentation of its various courses. During the year the department has had a total enrollment of approximately 842 different students. This number may be classified as follows: 575 students in elementary physiology courses (401-402, 407-408-409, 412, 419); 70 students from the College of Medicine in more advanced courses; 50 students from the College of Dentistry; and 40 from the College of Veterinary Medicine. From the Graduate School there was a total enrollment of 28 students. In addition to these, 79 students enrolled in special courses, carried largely as minors in the department.

In the Summer Quarter, the Department of Physiology registered 55

students in courses in elementary physiology. This represented an increase of more than 100 per cent over the previous year, which was the first in which physiology was offered for the Summer Quarter. During the coming Summer Quarter the department offers, largely as an experiment, advanced and research courses in addition to the elementary courses previously scheduled. It has been suggested, and the department heartily agrees with the suggestion, that a course in general physiology should be presented as a part of the summer offerings at the Lake Laboratory. It is hoped that arrangements can be made to that effect in the near future.

Throughout the year the department held weekly informal department meetings, as well as three or four more formal ones for the consideration of more important departmental problems. It is a pleasure to record the good will which prevails between the various members of the staff.

The department wishes to express its pleasure in welcoming Dr. D. W. Ashcraft as a full-time member of its staff. It is hoped that such transfer will result in a most satisfactory development of the wide field of veterinary physiology and will bring credit not only to the department but to the University as well.

The future growth of the department must depend, to a very large degree, upon the granting of additional space for its projected activities. In a previous communication, a somewhat detailed description of such necessities has been presented. We hope that it may be kept in mind, however, that such estimates for space were based almost entirely upon the present needs of the department, and that provision may be made not only for that room, but also for the needs of at least the near future.

One of the departmental projects which would be made possible by such additional space would be the development of courses in general physiology, probably under the general direction of Dr. Hitchcock. These courses, which would necessarily be given under the heading of advanced courses, would present the fundamental facts of physiology in a way which could not be given in the ordinary elementary course. The demand for such courses is constantly increasing; especially are the Departments of Zoology, Botany, Entomology, and Bacteriology insisting that their advanced students be given instruction in just such fundamental physiology as these courses cover. At present the department offers but a one-quarter course in general physiology. This should be expanded to become a two-quarter course given upon the campus, with the third quarter given at the Lake Laboratory. The present facilities of the department, however, make such expansion quite impossible.

Attention is again called to the feeling of the department that additional assistance should be made available for the laboratory groups in medicine and dentistry. Close supervision is absolutely necessary in physiological experimentation upon mammals. Delicate surgical operations and new technique, both quite foreign to the student's previous training, make necessary careful direction and supervision by laboratory instructors; this necessitates dividing the class into small groups. Hence, the necessity of more instructors.

There is likewise a need within the department of two or three young men or women to serve as "dieners." Both from the teaching and research standpoint, this type of assistant would be of the greatest service. Such assistance would require relatively little addition to the departmental budget; probably \$1,000 per year for each "diener" would suffice to attract the type of service desired.



The department wishes to express its gratification with the cooperation that it has received from the various administrative departments of the University. This has been especially evidenced on many occasions during the past year.

## DEPARTMENT OF PHYSIOLOGICAL CHEMISTRY AND PHARMACOLOGY

### CHANGES IN CURRICULUM

In order to accommodate the increasing number of non-medical students who elect physiological chemistry, a separate section of Physiological Chemistry 601 and 602 was taught by Dr. Wikoff. The non-medical students are for the most part of three types: graduate students, seniors in chemistry, and technicians. The course in Blood and Urine Analysis was given to the same group of students that registered for 601 and 602. Two medical students took this course as an elective.

Beginning with the Autumn Quarter, 1930, courses in Physiological Chemistry offered to non-medical students will carry a different number from the medical courses. Such an arrangement greatly facilitates settling the troublesome question of medical credit should these students later decide to study medicine.

Last year certain changes were made in the large chemical laboratory in order that it might be used for laboratory work in pharmacology as well. Enough pharmacological equipment was secured to make it possible for pharmacology to be taught in the laboratories of this department instead of in the physiology laboratories as heretofore.

### EQUIPMENT

Enough new pharmacological equipment was secured to divide the class into three groups for laboratory work. This made groups of 18 members each, which were entirely too large. For good laboratory instruction there should be a large kymograph for each 6 students. If the same amount of new equipment is secured this year as last, we shall have outfits for six groups. The present indications are that there will be about 75 students taking pharmacology next year. This will mean that the size of the laboratory groups in pharmacology will be 12 instead of 18. Such groups will still be twice as large as they should be for effective teaching.

Three new laboratory benches have been installed in Kinsman Hall. These will be used for advanced courses in Physiological Chemistry. At the present time all of the available space assigned to this department is in use, and no more benches may be installed for future students.

In the matter of equipment the outstanding need of the department is the acquisition of apparatus so that the fundamental course in pharmacology may be more effectively taught.

### PERSONNEL

There have been no additions to the personnel and none has been granted for the year 1930-31. Now that the department is offering special courses in physiological chemistry for technicians, there is an urgent need for an addition to the teaching staff. The freshman medical class in physiological chemistry usually numbers slightly more than one hundred. Previous to this year the

class was divided into three sections of approximately thirty each for didactic work. This year the class had to be divided into two sections of approximately fifty because there was one less instructor available on account of giving the additional course in physiological chemistry for non-medical students. It is quiz as with a class of thirty.

Besides publications which will be mentioned under Research, members of the staff have engaged in other activities as follows:

Dr. Clayton S. Smith: Papers (with E. R. Hayhurst), read before the section of Medical Sciences of the Ohio Academy of Science, April 18, 1930, on Neoplastic Qualities of Tar Oil and A New Type of Sulphur Soap in the Treatment of Certain Industrial Dermatoses; and one before the section on Materia Medica of the American Pharmaceutical Association at Rapid City, South Dakota, August, 1929, on The Teaching of Toxicology. Dr. Smith served as delegate from Ohio State University to the meetings of the American Association of Medical Colleges in New York, November, 1929, and to the U. S. Pharmacopoeial Convention, Washington, May, 1930.

Dr. J. B. Brown: A paper read before the Columbus Dental Society on The Food Requirement of the Human Body, March, 1930; and the following papers (with T. S. Sutton), read before the section of Medical Sciences of the Ohio Academy of Science: The Effect of Feeding Menhaden Oil on the Amount of Milk and Butterfat Secreted by the Dairy Cow and The Effect of Feeding Menhaden Oil on the Composition of Butterfat.

#### RESEARCH

Research in the biochemistry of fats has been conducted by Dr. Brown and his associates, Mr. Silberman, Mr. Ault, and Mr. Sheldon. Mr. Silberman received his Master's degree in Physiological Chemistry on June 10, 1930. Mr. Ault had an appointment as research assistant from funds allowed by the Graduate Council. Mr. Sheldon was a graduate assistant in this department.

Dr. A. W. Bosworth was appointed Honorary Fellow without compensation by the Graduate Council.

Dr. Wikoff, with the assistance of Miss Mary Magill and Mr. Sam Rosenfeld, has been studying certain phases of feminine metabolism. With Miss Magill she has analyzed the milk of lactating women who smoke, the object of this investigation being to determine whether nicotine passes into the milk. The patients were secured through the courtesy of Dr. Wayne Brehm and Dr. E. H. Baxter. Mr. Rosenfeld came to the department from Physiology where he had become interested in the physiological effects of the hormone of pregnancy. His work in physiology was directed by Dr. E. P. Durrant. Under Dr. Wikoff's direction, Mr. Rosenfeld is studying the chemical nature of the hormone after isolating it from the urine of pregnant women.

Mr. Ellis under the direction of Dr. Smith has been making extracts of embryonic liver. The liver was supplied by the diet kitchen of the University Hospital.

The department has under consideration the study of the effect of Lugol's solution in patients with goitre. The first step in this investigation is the development of an accurate method for the determination of minute quantities of iodine in the blood. The method is being developed by Dr. Wikoff, and early in the fall the clinical side will be taken up by Dr. Smith in cooperation with clinicians interested in the treatment of goitre.



# MEDICO-LEGAL

On two occasions the department was called upon to make toxicological examinations in connection with patients in University Hospital. The first involved several patients who had drunk preparations containing Jamaica ginger. Samples of the beverage were tested for arsenic. The second case was in connection with the death of the medical student, James Stump. In this case the stomach contents were tested for acetone.

## RECOMMENDATIONS

1. Further developments of the laboratory facilities for pharmacology.
2. A secretary for the department to prepare manuscripts and handle correspondence.
3. An increase in staff in order that there may be smaller sections, particularly of the freshman medical class.
4. A new building to cost approximately \$300,000 to house the departments of Physiology and Physiological Chemistry and Pharmacology.

## REPORT OF CHILDREN'S HOSPITAL

### TEACHING MATERIAL

In the year ending June 30, 1930, 1,961 patients were admitted to the hospital beds for a total of 22,285 hospital days. The average number of patients in the hospital throughout the year was 61. In the dispensary the average number of patients was 28.4 per dispensary day. It might be noted that during the current month the hospital patients have increased over 33 per cent, while the average number of dispensary cases per day has risen to 48. All of this material has been available to the resident physician and the interns. Most of the house cases but none of the dispensary cases have been available to senior students.

### NURSES TRAINING SCHOOL

The training school is now in operation with student nurses from affiliated hospitals lacking pediatrics. The use of such nurses in place of the former nurse maids in training has given patients and physicians better service.

### PERSONNEL

Early in the year the Superintendent of Nurses resigned, and was succeeded by Miss Jansen, who at the end of the year became Superintendent of the Hospital in place of Dr. M. S. Reynolds. Miss Washburn has just become Superintendent of Nurses. Most of the graduate nurses now in the hospital have come within the past few months.

Miss Lindsay, laboratory technician, installed August 1, 1929, has done excellent work, which has enabled patients to receive more scientific service than ever before.

The changes in the medical staff have been minor.

## REPORT OF ST. FRANCIS HOSPITAL

Total patients treated.....			2,539
Discharged:			
Private Patients .....	487	—	6,293 hospital days
Semiprivate Patients .....	366	—	4,669 hospital days
Clinical Patients .....	1,514	—	19,126 hospital days
Medicine .....	626	Gynecology .....	310
Surgery .....	900	E. N. T. ....	425
G. U. ....	101	Eye .....	32
Cured .....	1,324	Unimproved .....	143
Improved .....	747	Deaths .....	153
Institutional Deaths .....	135	Operations .....	
24-hour Deaths .....	18	Minor .....	563
Autopsies .....	44	Major .....	953
Emergency Patients treated.....	1,544	Emergency autopsies .....	2
Emergency deaths .....	51		

## ANNUAL REPORT OF UNIVERSITY HOSPITAL

The activities of the hospital the past year indicate that we have reached our maximum capacity until the unoccupied portion of the hospital is opened up to patients.

The comparative statistical report is as follows:

	1928-29	1929-30
Admission to Hospital .....	4,172	4,142
Out-patient cases .....	982	1,082
Total patient days .....	55,125	57,932
Average stay of patients (days) .....	13.21	13.98
Number of deaths .....	203	182
Autopsies .....	82	55
Autopsies—percentage .....	40.4	29.2

It was necessary to make use of Ward Number B 200 as a student nurse's classroom in order to meet the needs of the class admitted last fall. While it was necessary to have a larger room for classes, this arrangement has its drawbacks, inasmuch as this room is not fitted for the purpose, it closes the passageway for traffic from the second floor A and B wings to the west side of the building, and reduces the clinical beds of the hospital by ten.

A garbage house was added to the end of B wing. This is a vast improvement over the old one but is too close to the patients' rooms to obviate the noise and obnoxious odors.

## NEEDS

1. *Nurses' Hall.* The three halls now used for nurses are inadequate both as to size and adaptability. In South Hall rooms meant for one student are occupied by two. Aside from this the hospital pays \$20 per month room rent for each student housed in Neil Hall.

2. *Bed Capacity of Hospital.* The hospital bed capacity could be appreciably increased by employing added personnel to make possible the use of our vacant rooms. The interns and orderlies could be housed outside of the hospital, thereby adding both space and quietness to the hospital.

3. The elevator in A wing should be completed to use as a service elevator.

4. A canopy over the ambulance entrance.



5. *Social Service Director.* The Hospital greatly needs the services of a well-trained Social Service Director in order that clinical patient days may be lessened and that a thorough investigation may be made in order to serve those deserving charity.

6. A new isolation building.

#### REPORT OF THE CHIEF OF STAFF

During the past year the staff activities of the Starling-Loving Hospital have been carried out in a most satisfactory manner, as a result of real interest in the work of the hospital and hearty cooperation of the staff personnel.

The quality of the professional work in the wards, the operating rooms, and the laboratories has been characterized by an increasing efficiency through united effort. This work has resulted in the Hospital's retaining its Class A standing in the American College of Surgeons.

The several divisions of the staff have been fully manned. The Genito-Urinary Division, which has had a marked increase in the amount of work done was relieved by the addition of Dr. John Hoberg as an assistant. No other additions to the staff were made during the year. Dr. G. P. Lawrence was not reappointed, since the Division of Physical Therapy could not be expanded under present appropriations.

Regular monthly meetings of the staff have been held the second Monday of each month. The attendance has been better than in previous years, probably due to the change to an early evening hour. The dinner meeting seems very desirable, and the extra labor devolving upon the Dietary Department of the Hospital is much appreciated by the staff. The business of the staff has been carried on by the Executive Committee. The programs of the meetings have been given over largely to the presentation of instructive cases from the wards. This form of program has stimulated interest in the meetings and the patients have indirectly been benefited by staff discussion.

The equipment of the Hospital has for the most part met the needs of the staff, but inadequate appropriations have delayed the purchase of a few major items. The most serious handicap is insufficient bed space for both private and clinical patients. Arrangements should be undertaken to accommodate the increasing number of patients. This can be accomplished by utilizing the space devoted to accommodations for employees and the expansion of paid nurse personnel. It is desirable to further segregate the several subdivisions of the Staff. For convenience in teaching and nursing, the Ear, Nose and Throat Division should be as well arranged as Gynecology. All vacant space should be made available for patients by the prompt addition of necessary equipment and the employment of additional graduate nurses.

A more rapid turnover of patients was accomplished this year than ever before, but the wards are occasionally cramped by the retention of chronic cases not desirable for teaching. Plans are being made to minimize this condition for this coming year. The spirit of cooperation between the medical and nursing staff has been of high order, and much of the success of our accomplishment has depended upon this admirable condition. The work of the staff with its increase and detailed results will be shown in the report of the Record Department and need not be repeated in this report.

## REPORT OF THE SCHOOL OF NURSING

The census of the nursing department is as follows:

Superintendent .....	1	Student Nurses	
Assistant Superintendent .....	1	In residence June 15, 1929.....	87
Assistant Practical Instructor....	1	Entered during the year.....	55
Night Supervisor .....	1	Reinstated during the year....	1
Assistant Night Supervisor.....	1	Completed the course.....	25
Floor Supervisors .....	16	Resigned .....	8
General Duty Nurses.....	2	Preliminary students not ac-	
		cepted .....	5
Total.....	23	On leave of absence.....	1
		Dismissed .....	4
		Number of students ill.....	43
		Total days illness .....	465

## Classification of recitation hours

Freshmen .....	456
Juniors .....	240
Seniors .....	96

On March 1 we began our affiliation with the district nurses whereby students may receive six weeks practical experience in public-health nursing. This is a very popular course with the students, but because of the lack of help in the hospital it can be offered only as an elective. Arrangements have also been made for a student nurse to examine the children of the Nursery School in the Home Economics Department each morning. This offers to the student an opportunity to observe the normal child.

Student government was established July 1, 1929, and so far has proved a success. The few cases of punishment necessary have been well administered and accepted with a splendid spirit. There has been a marked development in social responsibilities and school pride. Student government has been responsible for a widening of social activities; a glee club was established, swimming classes were carried through three quarters of the year. Every month a birthday party is given for the students whose birthday falls in that month. Each Wednesday evening the students dress for dinner and make it a social affair. Several dances were given in Neil Hall during the year. There were also picnics and outings when the weather permitted. The Big Sisters were organized to take care of the new students and help them get adjusted to their new environment. They also took charge of the capping exercises.

The addition of two house mothers has contributed greatly to the pleasure and security of the home life and to the satisfaction of the parents.

The nurses received some gifts that brought much cheer to the homes: Dr. Frank, a patient, made possible the installation of a fine radio; the staff very generously donated at Christmas time quite a sum of money that was used for additional furniture; President and Mrs. Rightmire gave two lovely rugs and several pieces of furniture. The homes have been otherwise improved by the addition of fire escapes to South Hall and the much needed screens to the windows. The walls of the homes have all been redecorated this spring. We are hoping to add enough furniture this fall to equip the two added sitting-rooms in South Hall.

We trust enough pressure will be brought to bear on the coming legislature to cause that body to see our great need for a nurses' residence.



The Nursing School feels it has closed a most successful year and expects to make many additional improvements in the year to come. I wish to express my gratitude to the Executive Committee for their splendid support during the year. I also wish to thank the members of the staff who so kindly conducted classes for nurses. My thanks go especially to Dr. Upham whose unfailing support has been a great encouragement.

# REPORT OF THE DIETITIAN

## FOOD COSTS

Unit meal cost.....	.247
Per capita per day.....	.741
Total food cost.....	\$90,915.12
Total meals served.....	368,815

## SPECIAL DIETS

The total number of meals served from the diet kitchen shows a 20 per cent increase over last year. The increase was chiefly in high caloric, diabetic, anorexia, and special soft (chiefly post-operative) diets.

Type of Diet	Number of Patients	Number of Meals
Anemia .....	24	327
Anorexia .....	132	5,214
Anti-constipation .....	4	114
Arthritic .....	3	234
Asthma sensitization test.....	1	1
Bland .....	6	264
Colitis .....	1	9
Diabetic .....	68	4,752
Egg-free .....	1	24
Ewald test meal.....	1	1
Gall bladder test meal.....	38	38
Gastric ulcer .....	12	528
High calcium and phosphorus.....	2	156
High carbohydrate .....	5	144
High caloric .....	79	5,505
High fat .....	1	90
High protein .....	1	15
Hypertension .....	2	81
Hyperthyroid .....	8	396
Ketogenic .....	3	150
Low carbohydrate .....	1	30
Low fat .....	11	348
Low protein .....	3	66
Low protein and salt.....	27	1,092
Low residue .....	2	141
Low salt .....	15	585
Mosenthal test diet.....	32	96
Nephritic .....	28	1,167
Reduction .....	6	318
Sippy .....	16	543
Special soft .....	55	3,222
Special liquid .....	3	120
Toxic thyroid .....	2	141
Very soft-special .....	4	150
	598	26,064

## REPORT OF THE HISTORIAN

## PATIENTS ADMITTED:

Males .....	2,660	Black .....	915	Clinical .....	2,293
Females .....	2,584	White .....	4,329	Private .....	1,586
				Out .....	1,082
				Newborn .....	283
Total .....	5,244		5,244		5,244

There was a total of 3,668 patients discharged during the year. These were classified under the four standard "conditions on discharge"—recovered, improved, nonimproved, and died—according to service, as follows:

CLASSIFICATION	RECOVERED		IMPROVED		NONIMPROVED		DIED	
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
Medicine .....	342	31	435	39.6	224	20.4	99	9
Surgery .....	482	49.5	358	36.5	59	6.2	54	5.7
Gynecology .....	252	72.2	70	20	22	6.3	5	1.4
Genito-urinary ....	144	49.5	91	31.5	39	13.5	15	5.2
Obstetrics .....	296	79.8	58	13.5	9	2.4	8	2.2
Eye, ear, nose and throat .....	331	55.4	231	38.8	27	4.5	7	1.3
Total .....	1,847	50	1,243	33.9	380	10.9	188	5.1

The patients were discharged from the following departments:

Medicine .....	739
Pediatrics .....	187
Isolation .....	174
"A" Surgery .....	411
"B" Surgery .....	542
Gynecology .....	349
Genito-urinary .....	289
Obstetrics .....	381
Eye, ear, nose and throat .....	596

3,668

There were 55 autopsies, or 29.2 per cent of the total number of deaths.

There were 12 patients who died within 48 hours after operation.

The report of the work done in the various departments is as follows:

## OPERATING ROOM

Major Operations .....	855	Local anesthetics .....	272
Minor Operations .....	652	Spinal anesthetics .....	245
T and A .....	366	Sodium Amytol .....	9
Examinations .....	12	Avertin .....	4
General anesthetics .....	1,248	None .....	107

## OBSTETRICAL DEPARTMENT

Maternal deaths .....	6	Infant deaths—	
Number of births .....	323	Premature .....	20
Males .....	174	Stillborn .....	19
Females .....	149	Full term .....	11

## PHYSIOTHERAPY DEPARTMENT

Ultra-violet .....	787
Diathermy .....	234
Private .....	247
Clinical .....	774

## X-RAY DEPARTMENT

Examinations .....	2,628
Re-examinations .....	448
Treatment cases .....	116



In the past year the total number of case records handled in the Record Department is practically the same as in the previous year. This would seem to indicate that the hospital has reached its capacity because of the limited number of beds available. The Record Department, anticipating the probability of additional bed capacity for the ensuing year, will undoubtedly handle an appreciable increase in the total number of case records for the ensuing year. During the past year there has been instituted a Bronchoscopic and Esophagosopic Clinic, which requires an elaborate system of records and additional responsibility for the record force. The Department of Gynecology has also established a Wednesday morning follow-up clinic, which entails considerable Record Room responsibility, and the Department of General Surgery is anticipating a similar clinic for this year.

# REPORT OF THE LABORATORY

URINE		BACTERIOLOGICAL	
		<i>Smears—</i>	
General .....	10,682	Eye .....	57
P. S. P. ....	611	Ear .....	14
Mosenthal .....	38	Pus .....	74
Fishberg .....	318	Vaginal .....	143
Culture .....	6	Cervical .....	154
Tuberculosis .....	1,017	Urethral .....	163
BLOOD		Gums .....	5
Red .....	4,318	Lochia .....	6
White .....	4,366	<i>Cultures—</i>	
Hemoglobin .....	4,267	Nose .....	228
Differential .....	4,383	Throat .....	360
Platelet .....	180	Pus .....	111
Reticulocyte .....	218	Lochia .....	4
Coagulation .....	701	Tonsils .....	327
Typing .....	106	Transudates } .....	15
Matching .....	108	Exudates } .....	
Culture .....	112	Widal .....	43
Chemical .....	1,652	Vaccines .....	54
Sedimentation .....	571	WASSERMAN	
SPINAL FLUID		Blood .....	2,199
Cell count .....	212	Spinal fluid .....	141
Chemical .....	187	Salvarsanized serum .....	11
Bacteriological .....	66	Basal metabolism .....	287
SPUTUM		Animal inoculation .....	3
Tuberculosis .....	117	Tissue—	
Typing .....	1	Gross .....	664
GASTRIC		Microscopic .....	1,128
Vomitus .....	1	Bacteriological .....	2
Single .....	5	Bact. for typhoid .....	3
Fractional .....	30	Tissue cult .....	5
LIVER FUNCTION		Urine for lead .....	1
Icterus index .....	88	Gastric for poison .....	2
Van den Bergh .....	55	Glucose tolerance .....	1
FECES		Parasites .....	1
Chemical .....	89	Tuberculosis .....	2
Ova and parasites .....	44	Poison .....	1
KALIN		Total .....	
	184		40,891

# REPORT OF THE X-RAY DEPARTMENT

During the past year 2,628 new patients were examined, 428 were re-examined, and 116 new patients were treated. This represents a slight increase over the work of the year before.

An additional X-Ray machine, which has been requested several times, would make it possible to handle more patients in the same time, especially when there is a large amount of therapy being done. The Laboratory should have two full-time technicians in order to properly handle the volume of business.

#### REPORT OF THE BRACE SHOP

Below is a schedule of the work completed during the year and the total cost of the braces:

Item	Total Cost	Item	Total Cost
21 Back braces .....	\$490.00	1 Knock-knee brace .....	\$ 20.00
9 Long back braces .....	280.00	4 Torticollis braces .....	155.00
14 Butterfly braces .....	710.00	8 Jones knee cages .....	200.00
9 Orth. belts .....	103.00	16 Leg braces .....	425.00
14 Sacro-iliac belts .....	133.00	23 Ankle braces .....	324.50
58 Foot spring plates .....	145.00	19 Caliper braces .....	325.50
92 Footpads .....	137.50	21 Thomas caliper braces .....	460.00
59 Footcuffs .....	89.25	11 Aeroplane splints .....	94.50
5 Special braces .....	48.00	14 Ant. post pads .....	233.00
85 Whitman arch plates .....	416.00	27 Campbell braces .....	183.50
4 Leather boots .....	43.00	7 Bed rests .....	71.00
4 Leather jackets .....	270.00	80 Sockets in shoes .....	203.50
5 Infantile braces .....	188.00	2 Congenital hip braces .....	40.00
2 Bowleg braces .....	30.00	109 Repairs on braces.....	450.25

#### REPORT OF THE BOOKKEEPER

Patient days of pay patients .....	16,094
Patient days of part pay patients .....	9,938
Patient days of free patients .....	28,490
ACCOUNTS RECEIVABLE, June 15, 1929 .....	\$ 27,464.78
(including accounts of patients in hospital)	

#### EARNINGS FROM OPERATIONS

Room rent .....	\$193,130.00
Operating rooms .....	16,574.00
Anesthetics .....	15,055.00
Laboratory (clinical) .....	16,740.60
Medicine and dressing .....	18,550.51
X-ray .....	10,190.75
Dietetics (including board for special nurses and guest trays) .....	3,247.00
Urology .....	2,088.75
Physio-therapy .....	1,172.00
Laboratory (pathological) .....	1,972.00
Miscellaneous .....	882.18
Total earnings.....	\$279,602.79
Old accounts reopened .....	274.65
	\$279,877.44
Cash .....	\$112,661.41
Clinical <sup>a</sup> .....	151,187.29
Discounts .....	6,033.34
Hospital employees and student nurses.....	4,308.75
	\$274,190.79
	\$ 5,686.65
	\$ 33,151.43
Less allowance for accounts of patients in hospital.....	\$ 15,179.75
Net accounts receivable .....	\$ 17,971.68

<sup>a</sup> It is estimated that 60 per cent of the work in University Hospital is for clinical or teaching purposes from which we derive no revenue.



The following figures represent the earnings from the out-patient departments:

	Total	Cash Receipts	Clinical	Hospital Employees	Medical Students
Emergency room.....	\$ 2,943.01	\$ 1,531.69	\$ 889.57	\$ 38.50	\$ 4.00
X-Ray .....	10,302.00	2,088.36	6,261.88	681.50	211.00
Urology .....	1,162.85	249.00	305.97	9.50	.....
Physiotherapy .....	676.25	149.99	379.75	120.00	.....
Laboratory .....	2,266.95	918.89	563.80	39.50	5.00

## STUDENT MEDICAL SERVICE REPORT

### PERSONNEL

The Medical and Technical personnel has been ample and efficient. The changes have been: appointment of Dr. Wilce and of Dr. Beer, January 1, 1930, and temporary appointment of Dr. Watson, October 1, 1929.

### BUDGET

The allotment of funds for the work has been adequate for authorized functions. However, the *reduction in allotment of funds for the coming year results in the discontinuance of the flat rate per day to hospital and the necessity of paying a rate of \$3.00 per day to the hospital for only those students hospitalized by request of the student medical service.*

### SHELTER

The quarters accepted have been somewhat inadequate.

### RECOMMENDATIONS

None are offered in view of the fact that the study on "Personnel" by Mr. Cowley of the College of Education, includes the Student Medical Service and its recommendations are now in operation.

### MEDICAL ACTIVITIES SUMMARY

The following data represent a résumé of the work performed for the period covered by this report.

Dispensary Calls—	
Men .....	13,575
Women .....	5,947
Total .....	19,522
Dispensary calls, daily average .....	74.8
New patients .....	6,353
Indigent cases .....	4
Military cases .....	3
Referred to specialists .....	140
Referred to visiting specialists .....	165
Hospital bed patients .....	178
Women bed patients .....	30
Men bed patients .....	186
Average bed patients, daily.....	2.03
Enrollment entitled to service .....	14,495
Undergraduate students .....	12,109
Graduate students .....	2,386

Certain of the graduate students do not pay the fee for the Student Medical Service but have been furnished treatment and free hospitalization along with other students.

#### LABORATORY SERVICE

X-rays made .....	106	Urinalyses .....	468
B. M. R. tests made.....	187	Wassermann .....	42
Sputum, tests for T. B. ....	18	Smears .....	137
Cultures for diphtheria .....	24	Blood counts .....	172
Cultures for Vincents Angina .....	11	Thermic treatments .....	834

#### HOSPITALIZATION AND OUT-PATIENTS

Out-patients .....	83	Hospital cases .....	261
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#### PERIODIC HEALTH EXAMINATIONS

Undergraduates .....	300	Graduates .....	14
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#### ACUTE RESPIRATORY DIAGNOSES AND INFECTIONS

The following diagnoses are grouped and their number compared with the number of all conditions treated:

Rhinitis, acute .....	2,914	Infections, acute .....	99
Pharyngitis, acute .....	73	Tracheitis, acute .....	191
Rhino-pharyngitis, acute .....	834	Influenza .....	20
Bronchitis, acute .....	340	Laryngitis, acute .....	98
Total all conditions and illness treated.....		10,082	
Total respiratory cases .....		4,469	
Percentage of respiratory cases .....		44½	

#### PATIENTS FROM DIFFERENT COLLEGES OF THE UNIVERSITY

Arts .....	4,908	Law .....	453
Education .....	3,651	Dentistry .....	310
Agriculture .....	3,455	Pharmacy .....	2,997
Engineering .....	2,965	Veterinary Medicine .....	183
Commerce and Administration.....	2,101	Medicine .....	181
Graduates .....	1,018		

#### CLASSES

Freshman .....	7,002
Sophomore .....	5,064
Junior .....	3,799
Senior .....	2,131
Graduate .....	1,022



## COLLEGE OF PHARMACY

*Dean, CLAIR A. DYE*

The number of students enrolled this year in the College of Pharmacy is slightly below that of last year. This is no doubt partially due to our four-year requirement and the fact that nearly all the other schools of pharmacy are on a minimum three-year basis. Possibly the chief cause, however, is to be found in the unsettled business conditions. As a result many prospective, as well as old students, have found it difficult to find work sufficient to finance their college course, or even pay a part of such expense.

In attempting to recount some of the activities and achievements of the college, as well as some of the factors influencing the work, it should at the outset be stated that the work has been carried on with limited facilities. This has been due to the fact that we have been working under the handicap of temporary quarters. This has necessitated many adjustments in our regular program, especially as regards the practical laboratory features. Nevertheless we believe the work has been done in an efficient and satisfactory manner. The greatest difficulty experienced has been the lack of demonstrating material for the lecture-room exercises. Everything possible was done to overcome this, but we were only partially successful because we have no place to store such material. Neither has it been possible to move this from building to building so as to have it available for the various lecture and laboratory demonstrations.

Fortunately the foregoing conditions will be avoided in the future since we expect to occupy the new Pharmacy and Bacteriology Building at the beginning of the Autumn Quarter for 1930-31. We shall then have modern and ample facilities for carrying on the work. The new building, with its modern equipment, will not only be a permanent home for the College, but it represents also the culmination of a vision and a hope extending over many years. We therefore feel that this is not only a recognition of pharmacy as an important adjunct of public health and medical training, but also of the college and the work it has been doing over a long period of years. With the commodious quarters and modern equipment provided, the work of the college receives a new impetus and should go rapidly forward. At the same time this recognition cannot but serve to stimulate the students to greater efforts. We realize that this modernization of equipment and facilities means greater responsibilities and efforts on the part of the teaching staff. We feel sure, however, that all are looking forward to this challenge and will exert every effort to meet the conditions with enthusiasm and a resolve for greater achievements.

In anticipation of our moving out of our present quarters, we wish to avail ourself of this opportunity of expressing our very deep appreciation to all those who cooperated in providing our temporary location at the time of our removal from the old Chemistry Building. In this connection we wish to mention the departments of Chemistry, Industrial Engineering Chemistry, and Soils, and the Engineering Experiment Station. Naturally the providing of the laboratory facilities caused a great inconvenience to all concerned, a fact which we not only deeply regret but also greatly appreciate.

In our report for last year we called attention to the increasing number of inquiries we were having regarding the advanced and graduate work we had to offer in various pharmaceutical fields. We wish again to emphasize this great need. Recognizing the growing demand for graduate work, we feel that with the modern facilities available in the new building we will be in a position to meet, in a physical way at least, these demands. Before we can hope to go very far, however, in this field, new instruction must be provided. It is hoped therefore that this fact will be recognized and that as soon as possible a new and modernly trained instructor will be provided to take charge of such graduate instruction. While it may seem that the instructional load of the present staff is such that it would be no great hardship if they were to take on such work, it should be kept in mind that the time of these men, aside from their regular lecture and quiz periods, is largely taken up with laboratory supervision. In this connection it should be pointed out that in the new building this supervision will be greatly increased, since the work will be located in three laboratories instead of one as in former years.

Relative to the equipment for the new building, it should not be overlooked that it is not complete and that there still remain several laboratories yet to be equipped. Most important of these is the laboratory in manufacturing pharmacy. In the past few years we have not been able to give adequate instruction in this subject on account of a lack of suitable equipment and available laboratory space. We trust therefore that this will be kept in mind and that the necessary equipment will be provided at an early period.

Among the many new features of the new building, one of the most important will be the model drug store. Relative to this it should be stated that it is not the intention to sell any of the products kept in stock. The store is to serve as a laboratory where the students may be given instruction in the arrangement and classification of stock and such other practical features as may be necessary to train the student adequately.

Another important feature of the building will be the library. This we feel should be strongly emphasized, since it is one of the most essential features offered the students. With this in mind every effort will be made to provide the facilities needed to make the library readily accessible and an outstanding feature of the college. The nucleus of this will be the fine technical library of the late Azor Thurston, which a few years ago was donated to the College by his son, Mr. Newman R. Thurston of Grand Rapids, Ohio. With this as a basis it is hoped that we may soon build up a library in pharmacy and related subjects second to no other.

Among the various activities engaged in by the members of the teaching staff the following may be mentioned: The Dean was appointed by the Executive Committee of the American Association of Colleges of Pharmacy to inspect the College of Pharmacy of the University of South Carolina at Columbia, and also the School of Pharmacy at the College of Medicine of the State of South Carolina at Charleston. In addition he inspected the College of Pharmacy of the Municipal University of Detroit and that of the Detroit Institute of Technology. Along with Mr. Brown, he attended the meetings of the American Association of Colleges of Pharmacy and the American Pharmaceutical Association at Rapid City, South Dakota. Other meetings attended were those of the Ohio State Pharmaceutical Association and the Columbus Retail Drug Association. In fact, every effort has been made to keep in close touch with all phases of pharmaceutical conditions and advances.



As mentioned in previous reports, the College has provided the State Board of Pharmacy with the equipment and laboratory facilities necessary for their practical examination. Relative to this it should be stated that in the new building a special and completely equipped dispensing laboratory has been provided. This will not only give our students special advantages in this phase of their training but will also give the State Board of Pharmacy much better facilities than we have been able to furnish in the past.

In closing this report, I wish to give recognition to the members of the instructional staff for their very earnest, loyal, and enthusiastic support during the year. Without this it would have been impossible for the College to have accomplished what it has.

Permit me also to express to you and the various administrative officers and other officials my very deep appreciation for the many courtesies and helpful suggestions extended to me during the year.

# THE COLLEGE OF VETERINARY MEDICINE

Dean, OSCAR V. BRUMLEY

## ENROLLMENT

The enrollment for the year 1929-30 showed an increase over the preceding year. This was quite satisfactory considering the many changes that were necessary in the personnel of the College during this period. Enrollment in the various veterinary colleges indicates that veterinary education is on the up-grade and will not be such a serious problem in the future development of veterinary education. This is very encouraging as the live-stock industry needs a larger number of well-trained men to assist in the prevention of the diseases which constantly menace its development and existence.

The present enrollment, approximately thirty in each of the four classes, represents the maximum number that can be cared for with the present facilities. An increase in enrollment, which undoubtedly will come in the near future, will call for an expansion in the educational facilities of the college.

## CHANGES IN FACULTY

At the beginning of the Autumn Quarter a tentative reorganization of the College was necessary. The resignation of Dean White made it necessary for a new Dean to be elected by the Board of Trustees. Oscar V. Brumley was elected to this position. Other changes were necessary in order to complete the faculty personnel. Dr. W. F. Guard, Professor of Veterinary Surgery, Iowa State College, was selected to fill the position of Professor of Surgery and Director of Clinics, made vacant by the promotion of the former incumbent to the Deanship. Professor Guard arrived at the opening of the Autumn Quarter and immediately assumed his position.

Dr. Walter R. Krill, a graduate of the colleges of Agriculture and Veterinary Medicine, was added to the staff to assist with the teaching of Veterinary Medicine to Agricultural students and to take charge of the Ambulatory Clinic. Dr. Krill assumed this position at the opening of the Autumn Quarter.

Further additions to the College faculty were made by obtaining the services (part time) of Dr. B. H. Edgington, Pathologist of the Ohio Agricultural Experiment Station, and Dr. Alvin Broerman, Bacteriologist of the State Department of Agriculture. It was realized that their services would, necessarily, be limited, but would be of vital importance to the temporary organization from an academic standpoint. These men were given the title of Associate Professor. Dr. B. H. Edgington was assigned to teach Veterinary Medicine, Infectious and Contagious Diseases of Large Animals, for the Autumn Quarter 1929. His services were half time for this one quarter only. Dr. Alvin Broerman served in a similar capacity during the Spring Quarter, 1930, his subject being Veterinary Medicine, Poultry Diseases. In addition to teaching the above courses these men attended faculty meetings, seminar meetings, and others as the occasion demanded. Their services, even in this limited capacity, were very important in carrying on the work of the college in an efficient manner.

Lastly, the academic force was further augmented by granting a scholar-



ship in Veterinary Anatomy to Dr. E. C. Johnson. Dr. Johnson assisted part time in the anatomical laboratory, and the remainder in graduate work. This scholarship made it possible to greatly increase the efficiency of the laboratory teaching in anatomy.

#### REALLOCATION OF THE ACADEMIC WORK

The temporary reorganization of the College made it necessary to rearrange some of the academic work with the new instructors and those already on the staff. This was done, keeping in mind the future development of the College, and the present efficiency of the teaching staff. Each instructor, or member of the staff, was assigned some specific line of work, to be developed, carried on as a problem in research. It was quite clear in making the replacements and reassignments that efficient instruction could best be brought about by combining academic work with research. These adjustments were made promptly and were in operation at the beginning of the Autumn Quarter, 1929.

#### COOPERATIVE PROGRAM OF RESEARCH WITH THE OHIO AGRICULTURAL EXPERIMENT STATION AND THE OHIO DEPARTMENT OF AGRICULTURE

At the opening of the Autumn Quarter, the Dean stressed the importance of developing a program of research in the College of Veterinary Medicine. After a conference with President Rightmire, it was decided to confer with the Directors of the above-named institutions to learn their attitude in regard to an affiliation for the purpose of centralizing and developing an expanded program of veterinary research in Ohio. President Rightmire then conferred with Director Williams of the Ohio Agricultural Experiment Station and Director Green of the Ohio Department of Agriculture, and the affiliation was agreed upon. The following general proposal was worked out by representatives of the College of Veterinary Medicine, the Ohio Agricultural Experiment Station, and the Ohio Department of Agriculture:

#### PROPOSED COOPERATIVE WORK OF THE COLLEGE OF VETERINARY MEDICINE, THE OHIO STATE UNIVERSITY, THE OHIO AGRICULTURAL EXPERIMENT STATION, AND THE OHIO DEPARTMENT OF AGRICULTURE

The object of this proposal is to so unite the activities of these institutions as to further the investigation of the diseases of live stock and poultry and to promote veterinary education in Ohio for the best interests of the live-stock industry.

This cooperative relationship affords an opportunity of increasing the efficiency of these institutions in animal disease research and veterinary instruction, without interfering with their primary function.

The following activities would be particularly benefited by this proposed affiliation:

1. Additional opportunities for investigational work will be provided for the faculty of the college of Veterinary Medicine, The Ohio State University.
2. The facilities for graduate student work will be increased.
3. It will permit the use of the personnel representing the Agricultural Experiment Station and the Department of Agriculture for a limited amount of instructional work in the College of Veterinary Medicine.
4. The facilities for additional animal disease research will be increased through the availability of the library, laboratory equipment, technicians, and assistance of the staff of the Ohio State University.
5. Results of investigational work of a technical nature can be presented directly to veterinary students through which channel it may become of most benefit to the live stock industry.

6. The council made available by such a combination will be of value in formulating projects for animal disease research.

Suggestions regarding working arrangements for the immediate future:

1. The College of Veterinary Medicine is to furnish a parasitologist, part time, to cooperate with the Agricultural Experiment Station in animal parasite investigation.

2. The Agricultural Experiment Station is to employ a trained assistant to help with the routine work in parasitology.

3. The Agricultural Experiment Station is to supply one man to assist with instructional work at the College of Veterinary Medicine for half time during the Autumn Quarter and the Department of Agriculture is to furnish one man for a similar purpose during the Spring Quarter of the current year.

4. Seminar meetings are to be held at regular intervals by the personnel of the cooperating institutions.

The above is not a complete program of the activities that will be undertaken by the three institutions. Additional details will be furnished as they are completed.

Respectfully submitted,  
(Signed) O. V. BRUMLEY  
B. H. EDGINGTON  
ALVIN BROERMAN

September 13, 1929.

This program, started in the Autumn Quarter, was carried through the year with a great deal of interest and enthusiasm.

The instructional staff in many instances have taken advantage of this opportunity to further their work on various research problems.

#### RESEARCH

Research work in the College of Veterinary Medicine is carried on by individual members of the instructional staff, and by the Research Division at Reynoldsburg, Ohio, at the State laboratories. A brief outline of a portion of the research work begun by the Research Division is as follows:

1. Will sexually mature heifers retain *B. abortus* infection when removed from the source of infection prior to breeding?

Six negative heifers in the fourth month of gestation were given intravaginal injections of cultures of *B. abortus*. All six aborted.

Six negative unbred heifers were fed cultures of *B. abortus*. All gave positive agglutination reactions following this infection. Two remained reactors at the time of breeding. All were bred about 11 months after infection and delivered normal calves.

Three negative heifers were bred about 8 weeks prior to vaginal injection of *B. abortus*. All aborted.

Four negative heifers were bred about 3 months subsequent to vaginal injections of *B. abortus* cultures. Three gave positive reactions after the injection and two were positive at the time of breeding. One of these remained positive during the entire gestation period. All gave birth to healthy calves.

Observation of agglutinin titers of negative 30-to 40-day pregnant heifers given subcutaneous injections of heat-killed *B. abortus*. Monthly test over a period of one year. Three heifers were treated. Two gave positive and one negative reactions following the injections. All gave birth to normal calves.

2. Observation of agglutinin titers of pregnant and non-pregnant heifers given intravaginal injections of *B. abortus* cultures. The pregnant heifers were in the eighth week of gestation when infected.

Three pregnant heifers became high reactors and aborted.

Of four non-pregnant heifers, three gave positive reactions and one suspicious. Heifers were bred about three months after infection and all delivered healthy calves.



3. Effect of *Oesophagostomum columbiana* infection on sheep.

Lambs raised free of parasites were given cultures of embryonated ova. Clinical observations and post mortem examinations to be made over a period of several weeks after infection.

4. Effect of kamala of varying ash content on normal fowls.

Toxic results frequently follow administration of kamala to fowls. Commercial kamala varies markedly in the amount of inert material. Different doses of kamala of high and low ash content will be given to normal fowls and the results noted to determine if toxicity is in correlation to the ash content of the drug used.

5. The PH value of various portions of the intestinal tract of normal fowls.

This work is preliminary to other in which the effect of different rations on the PH value of the intestinal contents will be studied. Such information is particularly desirable since evidence shows that intestinal coccidiosis of young fowls may be restricted by acidulation of the intestine.

6. Immunization of chickens to *Ascaridia lineata* by injection of an extract from the parasite.

Evidence exists of an immunity resulting from natural exposure to the parasite. Can a similar refractive state be produced by injections of parasite extract? Chicks will be raised under conditions to prevent parasite infections. At suitable ages they will be given embryonated ova of the *A. lineata*. Clinical observations and postmortem results will be recorded.

7. Relationship of *B. abortus* in the udder to the agglutinin titer of the milk and blood serum and a comparison of results obtained in identification of *B. abortus* in milk by cultural and animal inoculation methods.

The presence of *B. abortus* in the milk has become a factor of increased importance with the realization of its possible infectivity for man. A simplified and accurate method for such determinations is needed. The work mentioned is being undertaken to obtain additional data on the value of these methods.

8. Relation of the udder to the continuity of abortion infection in cows.

The udder and pregnant uterus are considered to be practically the only tissues of the cow in which *B. abortus* will remain and reproduce. The infected gravid uterus ceases to harbor the organism except for a limited time after expulsion of the fetus and its membranes. On the other hand the udder may continue to harbor the infection for years. However, the udders of some aborting cows do not become infected. It seems probable that abortion-infected cows that do not have infected udders might cease to be dangerous as spreaders of infection within a certain time after calving or aborting.

To obtain information on this subject experiments are in progress in which udderless cows will be used for breeding, the udders of these cows having been surgically removed while they were calves.

A Bulletin on the Diagnosis of Parasites was published during the year and has been a real asset to the practicing veterinarian. More of these bulletins will be published from time to time as the material is developed by the Research Division.

Individual members of the instructional staff are engaged in research problems independent of the Research Division. This phase of veterinary education will be developed as rapidly as possible. The College of Veterinary Medicine should be interested *equally* in all phases of veterinary education.

#### REORGANIZATION OF THE COLLEGE

During the academic year 1929-30 much time and thought have been devoted to a program of reorganization of the College of Veterinary Medicine. This has been done by conferring with men prominent in veterinary education; visiting the more important veterinary colleges and studying their organizations and facilities first hand; checking over very carefully other veterinary colleges both in this country and in Europe; consulting with medical organ-

izations and colleges; visiting other institutions interested in veterinary education such as the Rockefeller Foundation; consulting with all of the members of the faculty of the College of Veterinary Medicine and many in the University at large.

This study, extending over a period of the entire academic year and made from numerous sources, has culminated in a definite outline and program. The faculty of the College of Veterinary Medicine believes without any hesitancy that such a program as outlined will allow for a development that will eventually place the College of Veterinary Medicine in an enviable position among the other colleges in North America.

The proposed plan of organization in brief is as follows: (1) The organization of the Administrative Staff, (2) the division of the teaching staff into seven departments as follows: Anatomy, Medicine, Parasitology, Pathology, Preventive Medicine, Research, and Surgery. Full details, with illustrative charts, have been formally presented to the President of the University. It is important to have a definite organization program in order to systematize the entire activities of the College and to have all functions operate in an efficient manner.

#### TEACHING ACTIVITIES

A close supervision of the teaching activities during the year has led to many changes, and no doubt will produce much more efficient results next year. The reallocation of the work naturally created some confusion but was necessary on account of the changes in personnel. A final adjustment of the teaching staff should obviate any further difficulty along this line. Plans are in force at the present time to harmonize the teaching activities, so as to avoid duplications, deletions, and other delinquencies apparent at the beginning of the year. The teaching staff is a unified body at the present time and should soon reach a maximum degree of efficiency in their academic work.

Further study will be made of all these functions, and perhaps certain changes will be necessary in order to expand the activities of the college to meet the demands of the profession.

The study of the teaching activities of the College was considered from the viewpoint of the students, alumni, and the teaching staff. Information obtained from these sources constituted the principal basis for the suggested changes.

#### DIVISION ACTIVITIES

The Division of Pathology, besides carrying on the routine teaching activities, has engaged in several research projects. Sterility of cattle, goiter of dogs, paralysis of poultry, pullorum disease, and distemper of dogs have all been given consideration in this program. The division conducted 959 autopsies and made numerous laboratory examinations of tissues from the standpoint of diagnosis.

The subject of histology is at present given in this division but will be transferred to the Division of Anatomy just as soon as equipment can be obtained.

The Division of Surgery and Clinics has had a very successful year. During the past nine months 6,412 animals were treated in the Veterinary clinics. This was divided into 3,251 stationary clinic cases, and 3,161 ambulatory clinic cases. Divided by species of animals, there were 481 horses, 1,753 cattle, 2,632 dogs, 270 cats, 581 pigs, 459 chickens, 135 sheep, 80 guinea pigs, and few cases of other birds and animals.



The ambulatory clinic is maintained during the entire year in order to give students actual field experience in the treatment of diseases of animals. This phase of clinical instruction will be increased quite rapidly on account of additional personnel in this division of the work. The increase in the large-animal clinic during the year is very gratifying and it is the desire of the staff to augment this phase of the work as rapidly as possible. There are great possibilities along this line, as the college is located in a rich agricultural section in which animal husbandry has been highly developed.

The health of the University herds and flocks have been under the supervision of the clinical staff. This has required much time, but it is a service which is very important and has been given priority at all times. It is the desire of the College of Veterinary Medicine to continue to render efficient service at all times to the Department of Animal Husbandry and to the community, in this specialized veterinary service.

The work of the Division of Research has already been cited under research. It will require another year to have this division function to its maximum degree of efficiency.

The Division of Anatomy made progress during the year. A scholarship was added in this division which assisted materially in teaching the laboratory courses.

#### CURRICULUM STUDY

The study of the veterinary curriculum has been undertaken under the direction of Dr. W. W. Charters of the Bureau of Educational Research. A definite program has been outlined for this study and it is being carried out as rapidly as possible. The study to date has been confined largely to obtaining information regarding the various positions held by graduates of the College of Veterinary Medicine, tabulating results of questionnaires returned, and an analysis of the various courses of study. This basic work, or job analysis, will soon be completed, and then definite constructive work can proceed on a revised curriculum. This study is one of the high points in the development of the college during the year. It will require another year for its completion but much good has already accrued from this work.

#### FUTURE DEVELOPMENT

During the year a building program was presented to the President setting forth the needs of the College of Veterinary Medicine. The present buildings are obsolete in many respects and are entirely inadequate to allow for any expansion in veterinary facilities. The location of the present buildings is such that it is impossible to add to them because of the proximity of other buildings. An entirely new building program should be launched in the near future to adequately provide for the future needs of the college for teaching and clinical work. The location for such a group of buildings, preferably, would be across the river near the Animal Husbandry Department. This location would allow for future expansion and would give much needed space for paddocks and exercising yards for animals. There are many reasons why such a location is desirable at this time.

A building program of this type should be started immediately as the present buildings are inadequate in every way to maintain an efficient veterinary institution. In looking over some of the other veterinary colleges in this country, it is observed that they are much more adequately housed and strategic-

ally located than ours. Ohio is one of the important live-stock states, and the live-stock industry should have adequate veterinary service. This can only come by revamping and enlarging the possibilities of the College of Veterinary Medicine. A group of suitable buildings for this purpose is one of the most important developments in this direction.

Preventive Veterinary Medicine will be developed during this next academic year. The College of Veterinary Medicine is very fortunate in obtaining the services of Professor A. F. Schalk who will have charge of the Division of Preventive Medicine. Professor Schalk's ample training and experience in this work will insure its rapid development. He will need assistance after the work is organized.

In the other Divisions of the College there should be more assistants and technicians provided, to develop the work more rapidly and to relieve the professors of routine duties for more advanced work. This has become a serious matter, and recommendations along this line will be presented at the appropriate time.

In closing, the Dean wishes to express the sincere appreciation of the entire staff of the College of Veterinary Medicine for the hearty cooperation received during the year from the Administrative Department and the Board of Trustees.



## DEPARTMENT OF PHYSICAL EDUCATION

*Director, L. W. ST. JOHN*

I have the honor to transmit to you and the Board of Trustees the annual report of the Department of Physical Education for the year ending June 30, 1930. This comprises:

A. General report for the Women's Divisions by Professor Lydia Clark Benedict, covering

1. Health education and supervision
2. Required work
3. Teacher-training work
4. Extra-curricular or intramural activities.

In addition, there are separate reports for the Women's Division made by the Medical Advisors for women, a separate report by Lenore K. Alway on the Required Physical Activities, and a comprehensive report on the Women's Intramural Sports by Dorothy Sumption.

B. For the Men's Division, there is presented

1. A report by Dr. F. R. Castleman, in charge of the freshman required work for men
2. A report on physical examinations and personal hygiene by Dr. Walter E. Duffee
3. A report on the professional course—Teacher-Training Work—for men, by Harlan G. Metcalf
4. Reports on individual activities (corrective exercise group) by Harlan G. Metcalf
5. Reports on other activities—dancing, by Messrs. Peppe and Staley; gymnastics and volley ball, by Staley; wrestling and boxing, by Mooney; soccer, by Castle; tennis, polo, fencing, etc., by Cobb
6. A report on intramural activities for the men by Mr. Harold S. Wood
7. A report on intercollegiate sports by assistants to the director, Messrs. Henry D. Taylor and Oscar L. Thomas. This intercollegiate report covers the work carried on by Mr. E. R. Godfrey among freshman athletes during the past year.

Attention is specifically called to a recommendation made by Professor Benedict for increasing the freshman requirement for women from two hours to three hours per week. It is my conviction that this recommendation should receive favorable consideration. Several years back, before the provision of Pomerene Hall for the women, the physical-education requirement for freshman women was three hours per week. Owing to the crowded conditions, unsatisfactory facilities, and great congestion, when the women were quartered in the basement of the old Men's Gymnasium, this requirement was reduced from three hours to two. It was felt at that time that this was only a temporary measure to escape difficulties encountered at that time. It would seem that we should return to the requirement of three periods per week for freshman physical-education activity.

For the coming year, a progressive step is in prospect for the Women's Division in assigning Miss Gladys E. Palmer as Assistant to Professor Lydia Clark Benedict for the purpose of increased efficiency in supervision and ad-

ministration of the rapidly increasing department activity. Professor Palmer has already started on a thorough job analysis of the Women's Division staff, being assisted in this work by the Bureau of Educational Research. This study will be followed by a thorough analysis of the instructional work of course content. Similar studies will be made during the coming year for the Men's Division.

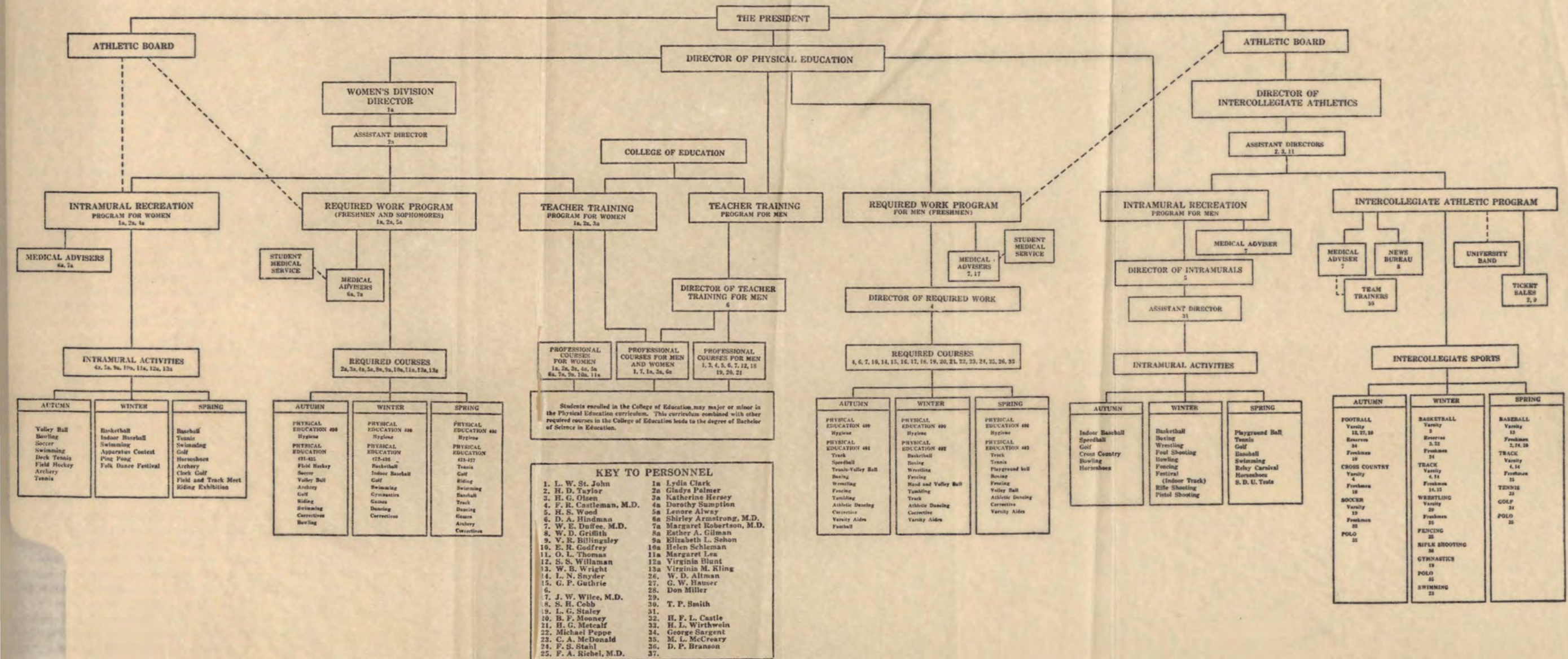
In connection with the Major Course work (Teacher Training), there is insistent and increasing demand for the offering of graduate work. This is especially true for the Summer Quarter offerings in physical education. A large number of graduates now in the field of Physical Education are finding it necessary, in order to keep pace with other lines of educational endeavor, to do advanced work in their special field of physical education. To meet this definite demand, we must be providing at once graduate work sufficient to merit a Master's degree. Specific recommendations along this line are being made to the Summer Quarter Council, inasmuch as the major request for such advanced instruction will be taken care of, in large part, by the Summer Quarter work.

Special attention should be called to the intramural reports for both men and women. It is to be observed that participation in intramural activities is steady and constant, and the belief is here expressed that most satisfactory results in the way of health-giving recreation are secured from these extra-curricular natural play activities.

Intercollegiate sports continue to be the target for a great many poorly informed and misguided individuals who wish to direct an attack against some well-established activity, which will insure the largest possible amount of publicity. It is to be noted that not many of these attacks are constructive in any measure. It may well be stated here that it is the purpose and object of the Athletic Board and their athletic administration to conduct a sane, sensible, and wholesome intercollegiate sports program without undue and unnecessary emphasis and publicity. There is included as a part of the intercollegiate report a financial statement for the year's business.



**THE OHIO STATE UNIVERSITY  
DEPARTMENT OF PHYSICAL EDUCATION  
ORGANIZATION CHART**









## ALUMNI RECORDER

EDITH D. COCKINS

Complying with your request for a report on the progress of the Alumni Records Division, I beg to submit the following statement:

On August 13th, 1929, I received a communication which stated that the Board of Trustees had established in the Office of the Registrar a Division of Alumni Records, and had appropriated the sum of \$9000 for operation and maintenance for the Biennium.

After considering all systems of filing and after several conferences with the representatives of the Kardex system, it seemed to me that a more flexible filing system than the Kardex system was necessary for Alumni records, and we therefore decided on a vertical-visible-pocket system. Accordingly ten 5-drawer steel units were ordered and 30,000 manila folders. In addition to this master file, steel files were also ordered for geographical lists and for class lists. The cards in these two files are made from the stencils which serve as the mailing lists as well.

One of the first considerations in the organization of the office was a permanent mailing system that could easily be kept up to date. Accordingly on September 3, an order was issued to the Elliott Addressing Machine Company for an electrically driven machine with addressing stencils carrying a probable 240 selections. On September 3, the order was placed for this machine and was acknowledged by the firm on September 16—the machine to be delivered about November 1.

Orders for files and supplies were placed during the month of September, and on November 1 the clerical staff was started on the work of this division.

After visits to the Alumni Offices of the Universities of Chicago, Minnesota, California, and Stanford, it seemed that the best method of procedure was to start this record system as a "de novo" proposition, sending blanks to each alumnus for definite information which would form the basis of a record system which could be added to from time to time, as information reached the University in regard to the accomplishments of alumni.

Blanks were mailed to all graduates of the University together with a communication from the President in regard to the establishment of the Alumni Records Division, urging the cooperation of all graduates of the University in keeping these records up to date. These blanks were mailed under first-class postage and the first returns have brought in about 60 per cent of the blanks mailed. Several hundreds were returned from the post office as "Unclaimed," and the tracing of these people who are lost as far as the University is concerned, is one of the most difficult problems in the compiling of Alumni Records.

The work in the office has not progressed as rapidly as I had hoped for, on account of delays in securing equipment over which I had no control. The Addressing Machine, on account of the selector, was a special machine; the stencil cutter was also a special machine. Both machines consumed several months in their construction and it was April 11 before the machines were delivered to the office. Since that time we have pushed ahead with the work as rapidly as possible, and more than half of the stencils have been cut, ready for

use. While we were waiting for the stencil machines, the time of the clerical staff was completely taken with sending out blanks; 21,000 blanks were checked and mailed by March 13.

At the beginning two people were assigned to the clerical work of this office. On May 7 one of these appointees, who was the head of this division, resigned to accept other work on the Campus. On account of the Civil Service examination which had been given for this division, it seemed necessary to wait for the returns from this examination. This left but one person to carry on the work. After waiting for six weeks for a report from the Civil Service Commission, it seemed wise to reorganize the division and transfer one of the clerks who had experience in the Registrar's Office to the Alumni Records Division. As the office is organized at present, it seems to me that the work of the division should go forward rapidly and satisfactorily.

Every blank that is returned to the office must be checked to see that the date and degree are correct. This has consumed a great deal of time, but when these records are checked, the accuracy of the permanent record is established.

One of the chief advantages of the stencils which are being made in the office is the possibility of selecting any group of alumni that is desired for any purpose. It is also possible from these same stencils to prepare within a few days the entire copy of the alumni addresses for printing. The University of California prints such a list annually, five columns wide, as the July number of the Alumni Monthly. One of the biggest items in the preparation of such copy has always been the clerical help involved and, of course, the addressing machine largely eliminates this item.

I have asked for an additional person during the next biennium to assist in pushing the work of this division. Two persons are not sufficient to keep these records up to date. At least once a year all alumni should be reached with some communication from the University in order that they may feel that the interest of the University has not ceased with the conferring of the degree.

I feel that the progress that this division has made in the last year is substantial and permanent, and that the Alumni Records Division will prove to be a valuable source of information and a useful service to the University at large.



# ENTRANCE BOARD

University Examiner, B. L. STRADLEY

I have the honor to present to the President and to the Board of Trustees the annual report of the Entrance Board for the year ending June 30, 1930.

## COMPARATIVE ADMISSION STATISTICS

	New Students		Transfers		Totals	
	1929-30	1928-29	1929-30	1928-29	1929-30	1928-29
Agriculture .....	354	330	78	63	432	393
Applied Optics .....	13	11	9	3	22	14
Arts .....	1,182	1,376	229	191	1,411	1,567
Arts-Agriculture .....				1		1
Arts-Commerce and Adm.....			2		2	
Arts-Education .....	22	26	40	39	62	65
Arts-Engineering .....			7	1	7	1
Commerce and Admin.....	877	853	266	257	1,143	1,110
Dentistry .....	11	27	42	17	53	44
Education .....	1,086	1,075	274	250	1,360	1,325
Engineering .....	655	571	38	59	693	630
Engineering-Commerce .....			1		1	
Law .....	60	46	84	86	144	132
Arts-Law .....			21	13	21	13
Commerce-Law .....			4	4	4	4
Medicine .....	21	27	40	71	61	98
Arts-Medicine .....			24	10	24	10
Graduate-Medicine .....			4		4	
Science-Medicine .....			20		20	
Nursing, School of.....	56	39	2	10	58	49
Pharmacy .....	52	60	7	10	59	70
Veterinary Medicine .....	39	41	2	5	41	46
Graduate School .....	739	567	385	331	1,124	898
Graduate School-Arts .....				1		1
Totals.....	5,167	5,049	1,579	1,422	6,746	6,471

## ANALYSIS OF TABLE

An examination of the table reveals a total increase of 275 in admissions for 1929-30 over 1928-29. The grand total (6,746) this year exceeded the number of admissions for any previous year. It may be interesting to note the figures for the last six years.

Year	Grand Total	Year	Grand Total
1924-25 .....	5,807	1927-28 .....	6,543
1925-26 .....	5,793	1928-29 .....	6,471
1926-27 .....	6,133	1929-30 .....	6,741

## INCREASES AND DECREASES IN COLLEGES

The College of Arts gained 38 this year in inter-college transfers, but lost 194 in new students. The College of Agriculture gained both in new students

(24) and in inter-college transfers (15). Commerce and Administration added 24 in new students and 9 in Campus transfers in 1929-30. Dentistry, as was to be expected this year, increased by transfers from the College of Arts (25). Last year the number fell off because of the change to the two-year Pre-dental curriculum. New student admissions in Dentistry decreased this year by 16.

The total increase in 1929-30 over 1928-29 in the College of Education was 35. Eleven of the number were new students. Engineering gained 84 new students but received fewer inter-college transfers (decrease 21).

Twenty more new students were admitted to the College of Law this year than last year. The School of Nursing showed an increase of 9. Admissions to Pharmacy decreased by 11. Veterinary Medicine decreased by 5.

#### FRESHMAN CLASS

The freshman admissions in 1929-30 increased over the previous year as 2,985 freshmen were admitted, while the number last year was 2,886. Of this year's admissions 2,420 came from Ohio high schools, 427 came from schools outside of Ohio, 137 were special students, and 1 entered by examination.

#### SPECIAL STUDENTS

The number of special students decreased this year by 21. One hundred thirty-seven were admitted. This is also a decrease over 1927-28. Sixty-seven special students were admitted for the Summer Quarter 1929-30.

#### ADVANCED STANDING

There were 1,198 admissions this year with advanced standing, an increase of 17 over 1928-29 and 104 over 1927-28. The number of students coming to us with advanced standing has been steadily increasing each year.

It was necessary to decline 127 applicants for admission to advanced standing during the year 1929-30. These applicants were refused admission largely because of poor scholarship. This is an increase of 13 over the number of students refused admission to advanced standing in 1928-29.

#### INTER-COLLEGE TRANSFERS

During the year, 1,579 inter-college transfers were completed. This number was 157 higher than last year. However, the increase this year is largely accounted for by larger numbers transferring into the professional schools and the Graduate School. Unnecessary transferring has been greatly reduced through the efforts of the Entrance Board, the Junior Deans, and the College Secretaries to counsel with the students carefully before making transfers.

#### GRADUATE SCHOOL

The increase in admissions to the Graduate School this year was 226 over last year. This is a notable advance over previous years as shown below:

	1929-30	1928-29	1927-28	1926-27
Increase .....	226	46	95	95

An examination of the following list of states, countries, and colleges from which students came to the Graduate School this year reveals more than a national interest in our offerings in advanced subjects, a number of foreign



colleges being represented as well as colleges from almost every state in the United States.

Admissions to Graduate School on basis of degrees conferred by The Ohio State University .....	385
Admissions to Graduate School on basis of degrees conferred by other colleges and universities .....	739
<b>Total</b> .....	<b>1,124</b>

Students were admitted to the Graduate School on the basis of degrees conferred by the following colleges and universities:

(Students holding degrees from unaccredited colleges are required to complete one or more quarters in an undergraduate college of this University or another accredited university)

<i>Alabama</i>	Notre Dame, University of .....	1
Alabama, University of .....	Purdue University .....	6
Birmingham Southern College .....	Wabash College .....	1
<i>Arizona</i>	<i>Iowa</i>	
Arizona, University of .....	Drake University .....	1
<i>California</i>	Iowa State Agr. College .....	3
California, University of, Los Angeles ..	State University of Iowa .....	1
California, University of .....	<i>Kansas</i>	
Mills College .....	Kansas State Agricultural College .....	3
Whittier College .....	Kansas State Teachers College, Emporia ..	5
<i>Delaware</i>	Kansas State Teachers College, Pittsburg	1
Delaware, University of .....	Kansas, University of .....	2
<i>District of Columbia</i>	<i>Kentucky</i>	
Howard University .....	Asbury College .....	1
George Washington University .....	Berea College .....	1
<i>Florida</i>	Eastern Kentucky State Teachers College	1
Florida, University of .....	Georgetown College .....	1
<i>Colorado</i>	Kentucky, University of .....	3
Colorado College .....	Transylvania College .....	1
Colorado State Agricultural College .....	<i>Louisiana</i>	
Colorado State Teachers College .....	Tulane University .....	1
Colorado, University of .....	<i>Maine</i>	
State Agricultural College of Colorado ..	University of Maine .....	1
<i>Connecticut</i>	<i>Maryland</i>	
Yale .....	St. John's College .....	1
<i>Georgia</i>	Western Maryland College .....	1
Georgia School of Technology .....	<i>Massachusetts</i>	
<i>Idaho</i>	Amherst College .....	1
Idaho, University of .....	Boston College .....	1
<i>Illinois</i>	Boston University .....	2
American Conservatory of Music .....	Eastern Nazarene College .....	1
Chicago, University of .....	Harvard University .....	2
Illinois, University of .....	Massachusetts Agricultural College .....	2
Illinois Women's College .....	Mount Holyoke .....	1
North Central College .....	Radcliffe College .....	1
Northwestern University .....	Simmons College .....	1
Wheaton College .....	Smith College .....	3
Loyola University .....	Wellesley College .....	2
<i>Indiana</i>	<i>Michigan</i>	
Butler University .....	Detroit Teachers' College .....	1
DePauw University .....	Hope College .....	2
Earlham College .....	Michigan Agricultural College .....	1
Hanover College .....	Michigan State College .....	1
Indiana Central College .....	Michigan State Normal at Ypsilanti .....	2
Indiana University .....	Michigan, University of .....	12
Indiana State Normal School .....	Olivet College .....	1
Manchester College .....		

*Minnesota*

Minnesota, University of ..... 1

*Missouri*

Central Missouri State Teachers' College . 1

Central Wesleyan College ..... 1

Missouri School of Mines ..... 1

Missouri, University of ..... 4

Northeast Missouri State Teachers' College 1

Park College ..... 1

*Montana*

University of Montana ..... 1

*Nebraska*

Nebraska Wesleyan University ..... 1

York College ..... 1

*New Hampshire*

New Hampshire, University of ..... 2

*New York*

Columbia University ..... 17

Cornell University ..... 2

New York, College of City of ..... 1

New York State College for Teachers ... 1

St. Lawrence University ..... 1

Syracuse University ..... 5

Vassar College ..... 1

*North Carolina*

Agricultural and Technical College of

North Carolina ..... 1

Johnson C. Smith University ..... 2

North Carolina State College of Agr.

and Engr. .... 1

North Carolina, University of ..... 2

*North Dakota*

North Dakota, University of ..... 1

*Ohio*

Akron, Municipal University of ..... 4

Antioch College ..... 3

Ashland College ..... 3

Baldwin-Wallace College ..... 3

Bluffton College ..... 15

Bowling Green State Normal ..... 15

Capital University ..... 16

Cedarville College ..... 4

Cincinnati, University of ..... 6

Defiance College ..... 8

Denison University ..... 21

Heidelberg College ..... 11

Hiram College ..... 5

Kent State Normal College ..... 12

Lake Erie College ..... 2

Marietta College ..... 10

Miami University ..... 18

Mount Union College ..... 13

Muskungum College ..... 33

Oberlin College ..... 11

Ohio Northern University ..... 25

Ohio University ..... 47

Ohio Wesleyan University ..... 42

Otterbein College ..... 22

Oxford College for Women ..... 1

Rio Grande College ..... 8

St. Mary of the Springs College ..... 1

Toledo, University of the City of ..... 3

Western College for Women ..... 5

Western Reserve University ..... 11

Wilberforce University ..... 1

Wilmington College ..... 2

Wittenberg College ..... 19

Wooster, College ..... 17

*Oklahoma*

Oklahoma, University of ..... 1

*Oregon*

Oregon State Agr. College ..... 3

Oregon, University of ..... 2

*Pennsylvania*

Carnegie Institute of Tech. .... 1

Geneva College ..... 1

Grove City College ..... 2

Lincoln University ..... 1

Lafayette College ..... 1

Mansfield Pa. State Teachers' College ... 1

Pennsylvania State College ..... 3

Pennsylvania, University of ..... 1

Pittsburgh, University of ..... 6

State College of Pennsylvania ..... 1

St. Vincent College ..... 1

Swarthmore College ..... 1

Temple University ..... 1

Washington and Jefferson College ..... 1

Westminster College ..... 2

Wilson College ..... 1

*Rhode Island*

Brown University ..... 1

*South Carolina*

Clemson College ..... 1

Winthrop College ..... 2

*South Dakota*

South Dakota State College of Agric.

and Mech. Arts ..... 1

South Dakota State School of Mines ..... 1

*Tennessee*

Fisk University ..... 1

George Peabody College for Teachers ... 2

Maryville College ..... 1

*Texas*

Stephen F. Austin State Teachers College 2

Texas Agr. and Mech. College ..... 1

Texas, University of ..... 1

*Utah*

Brigham Young College ..... 1

*Vermont*

Middlebury College ..... 1

*Virginia*

Hampton Normal and Agricultural

Institute ..... 1

Hollins College ..... 1

Richmond University ..... 1

State Teachers College, E. Radford ..... 1

Virginia Union University ..... 2

Washington and Lee University ..... 3

*Washington*

State College of Washington ..... 1

Washington, University of ..... 1

*West Virginia*

Bethany College ..... 4

Broadus College ..... 1

Davis and Elkins College ..... 2



Fairmont State Normal College .....	3	China University .....	1
Marshall College .....	7	Fuh Tan University .....	2
Salem College .....	2	Great China University .....	1
West Virginia Collegiate Inst. ....	3	Grignon University, France .....	1
West Virginia University .....	3	McGill University .....	2
West Virginia Wesleyan College .....	1	Nankai University .....	2
<i>Wisconsin</i>		National Central University .....	5
Ripon College .....	1	National Normal University .....	3
Stout Institute .....	1	National University of Peking .....	1
Wisconsin, University of .....	9	National Wu-Han University .....	1
<i>Wyoming</i>		Ontario Agricultural College .....	1
Wyoming, University of .....	2	Peiping University .....	1
<i>Foreign</i>		Soochow University .....	1
British Columbia, University of .....	1	Shanghai College of Law .....	1
Chi Nan University .....	1	Sun-Yat-Sen University .....	1

## CLASSIFICATION OF FRESHMEN BY HIGH-SCHOOL GRADES

COLLEGE	No. OF FRESH- MEN	UPPER		MIDDLE		LOWER	
		No.	Per Cent	No.	Per Cent	No.	Per Cent
Agriculture .....	256	115	45	107	42	34	13
Appl. Optics .....	10	2	20	4	40	4	40
Arts .....	823	324	39	335	41	164	20
Arts-Education .....	13	9	69	4	31	..	..
Com. and Admin. ..	642	182	28	283	44	177	28
Education .....	463	224	48	179	39	60	13
Engineering .....	523	184	35	243	47	96	18
Nursing .....	50	20	40	25	50	5	10
Pharmacy .....	41	10	25	21	51	10	24
Vet. Med. ....	26	5	19	14	54	7	27
Total or Average..	2,847	1,075	38	1,215	42	557	20

NOTE—There are 137 special students and 1 student admitted by examination, making the total number in the freshman class 2,985.

## SELECTION OF STUDENTS FOR COLLEGE OF MEDICINE

One hundred students were selected from several hundred applicants for the freshman medical class of the autumn of 1929. Approximately six hundred students who were not residents of this State applied for admission but were refused. For several years the class has been selected from candidates who are residents of Ohio and we cannot encourage the applications of non-residents. This policy will be continued as long as we have an excess of well-trained candidates within our own State.

Five students with advanced standing in medical colleges were chosen from nine candidates to fill vacancies existing in the upper classes of our College of Medicine.

While visiting colleges, at association meetings, and through all available contacts, the Chairman of the Entrance Board has studied the methods used by other committees and boards having the same problem—the selection of a limited number of students from a large group of candidates for the study of medicine.

During the current year, attention has been given to the factors entering into the failure of freshman medical students. The latest experiment in discovering the ability of students to study medicine, the aptitude test, was given

each freshman medical student. We have found such a close correlation in aptitude test grades, intelligence test grades, grades in pre-medical sciences, and academic records in the freshman medical work that we recommend the use of the aptitude test for applicants, the grades being available before the Board makes the selection. The exceptions to the above correlation failed because of such conditions as financial worries, ill health, or poor study habits caused by unsatisfactory living arrangements. We are attempting to eliminate two of these factors by questions on finances and health on our new application blank. A physical examination by our Student Medical Service might eliminate admission of students not physically able to carry on the study of medicine.

All preliminary information on the candidates for admission in the autumn of 1930 is being gathered at this time and we are encouraging personal interviews and recommendations by faculty members under whom the candidates have studied pre-medical sciences. It is interesting to note the splendid cooperation of our faculty in this matter. With such a quantity of well-trained candidates within our own Campus, the Board must depend more and more on the recommendations of these faculty members who have had personal contacts with our pre-medical students.

Dr. Ernest Scott, who is a member of the Entrance Board and on the faculty of the College of Medicine, has been of inestimable assistance in the selection of the medical classes and we wish to include this statement of appreciation of his work in our report.

#### ADMISSION RECORDS

Feeling that the increasing interest in the guidance of students indicated the desirability of such a course, the University Examiner at the beginning of the present calendar year inaugurated a system of "Admission Records" for the benefit of the college secretaries and junior deans. These records, which are made for each entering student, consist of practically a duplicate of the high-school certificate, giving the year each course was taken in high school, the grade earned, and other information as to the rank in class, etc. The record for students entering with advanced standing shows the high-school units accepted for admission and the complete evaluation given credits from other institutions attended. The supplying of this information to the secretaries of the colleges has made unnecessary the former visits of the secretaries, or their representatives, to the office of the Entrance Board to secure the admission records of new students and thus has saved them a great deal of time and effort.

It is expected that the junior deans will have access to the admission records after the secretaries have transferred the necessary information to their office record cards and it is believed that the data thus available will be of great assistance to them in the guidance of their students. The favorable reception given these records by the college secretaries and junior deans assures the Examiner that they are well worth the increased expenditures of time and effort necessary in preparing them.

#### STATE SCHOLARSHIP CONTEST

In April, 1930, under the direction of the State Department of Education, 2,922 Ohio high-school seniors, who had been selected by their respective high-



school faculties as the best students, participated in the first General Scholarship Contest for High-School Seniors. In making their selections, the faculty members were urged to take into consideration, in addition to scholastic endeavor, the students' future promise, attitude, ideals, and behavior. The 147 students who stood highest among this group constituted the high 5 per cent whose names were submitted to the Ohio colleges as eligible candidates for available scholarships. Of these 147 students, 20 chose to come to Ohio State University for their college work. Their applications will be studied and classified by the Entrance Board and recommendations for the scholarships authorized by the Board of Trustees will be made to the President as soon as possible.

In addition to the 147, or the high 5 per cent, there were approximately 375 students of the remaining 95 per cent who manifested an interest in the Ohio State University. Appropriate steps will be taken to satisfy this interest with one purpose in mind, namely, that the University might assist the State Department of Education in this program of cultivating and encouraging high scholarship in the high schools of Ohio.

On May 10, the winners of the Scholarship Contest were invited by the State Department of Education to receive their awards at the State Capitol. Upon request of the President, the University Examiner addressed these young people.

#### INSPECTIONS

The University Examiner has been called upon to make a number of college inspections during the past year.

#### NORTH CENTRAL ASSOCIATION

At the request of the North Central College Association in February, the Examiner inspected Butler College at Indianapolis, DePauw University, and Lewis Institute at Chicago. As a result of these inspections, one college was dropped from the North Central Association, another placed on probation, and the third retained in good standing.

#### OHIO COLLEGE ASSOCIATION

Several colleges applying for admission to the Ohio College Association were inspected. Bluffton College at Bluffton, and Mt. St. Joseph College at Mt. St. Joseph-on-the-Ohio, were recommended for membership in the Ohio College Association subject to re-inspection next year. Mary Manse College, Toledo, was not recommended for admission to the Association at this time.

Notre Dame and Ursuline Colleges, both of Cleveland, had been admitted previously subject to re-inspection this year. These two inspections were made in March.

Two of the Ohio colleges found deficient in certain standards at the time of the last triennial report remained to be inspected this year. These colleges, St. Johns College of St. Johns University, Toledo, and Ohio Northern University, Ada, were inspected and continued on probation for one more year.

#### PRESIDENT'S COMMITTEE

The University Examiner was invited by the presidents of three colleges, Rio Grande, Findlay, and Dayton Junior Teachers College, to make investigations. These visits were made in January, February, and May. The Examiner was accompanied by Doctors Lewis and Alberty in the Dayton visitation.

## OHIO COLLEGE ASSOCIATION

In addition to the inspections required of the Committee on Membership and inspections of the Ohio College Association, several other duties came to the committee. This was the year of the Triennial Report to the Executive Committee of the Association. This detailed report on all the colleges of Ohio was made to the Executive Committee of the Association at their meeting in April.

At the same meeting, the University Examiner recommended\* that the Ohio College Association adopt the same standards of admission and membership as those maintained by the North Central Association. This recommendation was tabled until the meeting next year.

A new application and inspection form was designed and adopted by the Ohio College Association.

The University Examiner, as chairman of this committee, prepared a questionnaire on additional standards for judging colleges on the basis of spiritual achievements. This questionnaire was sent to the president of each college in Ohio and very interesting answers have been received from practically every college in the State. The Examiner expects to continue this study for at least another year.



## UNIVERSITY LIBRARY

*Librarian, EARL N. MANCHESTER*

I present herewith a report of the activities and the progress of the libraries of the University during the year July, 1929, to June, 1930.

The report of the Accession Librarian, Miss Kellicott, indicates that the total accessions for the year numbered 23,900 volumes, making the total number of volumes in the libraries on July 1, 1930, 359,850. Of this number, 11,560 were purchased items; 5,267 were gifts; 930 were purchased on laboratory supply funds; 1,435 were received as exchanges, of which 976 were theses of other institutions; 82 were publications of the University; 4,126 were volumes of periodicals; 500 were added from the Franz Theodore Stone Laboratory and from other collections. In addition some 15,205 unbound state and municipal documents were received but not accessioned.

The appropriation for books and periodicals for the biennial period January, 1929, to December, 1930, was \$100,000, bringing us again to the level of the scale of appropriations of the biennial period 1923-25 and 1925-27, with the exception that no appropriation was made for replacement funds, which was an additional item of \$5,600 in the budgets for 1923-25 and 1925-27. Special grants, however, were made to individual departments during this year.

To the Law School.....	\$15,000
To History .....	2,000*
To Entomology .....	1,000*
To Romance Languages .....	1,000*

\* Funds of these grants were not available for use until July 1, 1930.

The College of Dentistry received also from the Carnegie Foundation the grant of \$1,000 for the purchase of books and periodicals in the field of Dentistry. Such grants enable the library to fill certain very definite and specific needs for departments and are frequently the means of acquiring special collections of material not obtainable in the course of the normal purchases of the department through the year.

We were able to bring departmental allotments to the level of the 1923-25 and 1925-27 appropriations, but in no case to increase them beyond that level. Some departments, however, profited by the assumption by the general library funds of all continuation and periodical charges on record as of July 1, 1929, hitherto a charge against the department allotments, thus leaving their funds for this year clear for the purchase of books, and for second copies of important journals desired in the departmental libraries. The success of the plan in increasing slightly the departmental book funds and in simplifying records and bookkeeping, appears to warrant its continuance in the future.

In connection with these allotments it should not be forgotten that the General Library periodicals fund renders substantial aid to the departments in assuming the charges for certain periodical subscriptions of interest to them. The statement of this year's expenditures by schools and colleges may be of interest.

Medicine .....	\$2,558.52	Law .....	\$ 193.75
Engineering .....	2,445.57	Veterinary Medicine.....	187.77
Agriculture .....	1,909.85	Pharmacy .....	76.76
Commerce .....	1,160.02	President's Division .....	33.70
Arts and Sciences.....	1,143.65	Graduate School .....	15.40
Education .....	955.64		

The library is fortunate in its friends, alumni, and faculty who contribute books, journals, and monographs to our collections. From the library of the late Dr. John C. Gensburg, we received 126 volumes and 293 pamphlets on Veterinary Medicine and General Anatomy.

From Professor Joseph S. Myers, 182 volumes in General Literature and Journalism.

From Mrs. Septimus Sisson, 200 volumes and 292 pamphlets in the field of General Science, particularly Veterinary Medicine. This gift was made in memory of Dr. Septimus Sisson, formerly a member of our faculty.

From Dr. Lumina Riddle Smyth, 426 volumes and 300 papers and monographs in General Science, Botany, Bacteriology, Entomology, and Zoology.

From the estate of the late Professor George W. McCoard, of the Department of Mathematics, 58 volumes on Mathematics.

From our faculty we are indebted to the following members and to many others who presented single volumes:

Professor William L. Graves.....	25	Professor E. E. Lewis.....	14
Dr. Emery R. Hayhurst.....	42	Professor H. A. Miller.....	30
Professor Homer C. Hockett.....	19	Professor E. W. Pahlow.....	34
Professor Joseph A. Leeder.....	33	Professor S. L. Pressey.....	36

From various university organizations, student classes, and administrative offices, we received 468 volumes. Some of the departmental libraries report additional gifts made by faculty and students to their library, which are not reported here.

The Graduate Council of the University through its Library Committee has made supplementary allotments to departments for special sets of journals or books too costly to be secured from departmental funds. The sum of \$10,000 was set aside from the general appropriation for this purpose, and purchases have been made amounting to \$4,896.72 at the date of this report. Other items are on order, and applications for further grants are still under consideration.

The General Library funds are frequently available to assist departments in securing desired titles or sets, and \$5,250 of the general reference funds have been expended this year for items of this type.

Duplicate volumes of books and journals to the number of 628 titles at a cost of \$3,212.59 have been purchased during the year, and 930 volumes were purchased from Laboratory Supply funds. The last-mentioned group is the occasion of much trouble to the Library, largely because of the manner in which the orders are placed. The Library is charged with making the records of the acquisition and the marking as University property of all books purchased on University funds, including the Laboratory Supply and the Departmental Current Expense, and the distribution of these titles to the departments ordering the books. Since the orders for purchase are not sent out through the Library and no copies of these orders are sent to the Accession Department for its information, books are received for which there is no order, and departments insist that orders have been placed on which the Library has no record of receipt. Vexatious delays occur which could be easily remedied if



the routine of handling these special orders were slightly changed. It is hoped that an adjustment can soon be made to the satisfaction of all parties concerned.

## BINDING

Miss Davis reports the following binding statistics for the year:

Volumes bound .....	7,170
Volumes repaired at the bindery .....	2,162
Volumes repaired outside the library .....	875
Pamphlets bound .....	247

In March it was found necessary to reduce the binding quota from 900 volumes a month to 500 in order to stay within the allotment set aside for this purpose, with the result that we fall behind last year's record by 660 volumes. This is a regrettable fact since it will mean an inevitable delay in making the 1929 and 1930 volumes of periodicals available to general and departmental use. With facilities at the bindery plant able to accommodate 900 volumes per month, some means should be found for utilizing this service to its fullest extent. It can not be too often or too emphatically said that promptness in binding up our periodicals, serials, and series of monographs and reports is an index of the effectiveness of the service of the Library to its patrons and in addition is an assurance of the permanency and the value of the Library collections.

## CATALOGING DEPARTMENT

Miss Bertha Schneider, Catalog Librarian, reports that 31,965 volumes were cataloged last year, representing 17,712 titles. In all, 89,225 cards were added to the general catalog and to the 10 departmental library catalogs which this department maintains. Of these catalog cards, 47,283 were purchased from the Library of Congress and 41,942 were typewritten. A total of 11,470 volumes, largely periodicals, annual reports, and serial monographs were added to sets in the main and departmental libraries last year; 4,478 volumes were duplicates of copies already in our collections.

Of the transfers from the Main Library to the departmental libraries, including volumes on order sent directly to the departments as soon as they have been processed, the following statistics are interesting:

Department	1928-29	1929-30
Botany and Zoology .....	776	1,169
Brown Hall .....	119	206
Chemistry .....	1,094	722
Commerce .....	2,041	1,993
Education .....	1,958	2,834
Law .....	1,179	3,052
Lord Hall .....	254	318
Medical .....	884	892
Orton Hall .....	597	370
Physics (Cole Memorial)* .....	....	2,271
	8,902	13,827

\* Established February 27, 1930.

In addition to the routine work of the year of taking care of current accessions, the department has been able to complete the following projects:

Miss Avery completed records for a supplementary list of the holdings of the Library for the Union List of Serials. Supplements to this invaluable tool are being published by the H. W. Wilson Company.

With the establishment of the departmental library of Physics in February, 1930, a card catalog for the 2,271 volumes transferred was compiled for the use of the department. In connection with this work, all titles previously classified in the old classification "Physics" were reclassified and recatalogued when necessary. With these were included a number of titles from the library of Dr. Mendenhall which had never been added to our collection.

An accumulation of several years standing of unclassified, uncatalogued, and unbound periodicals in Room 301 has been classified by Miss Avery with the assistance of Miss Hoy and Miss Farrar. A similar collection of theses and monographs in series which has been accumulating for some time in Room 301 was classified and cataloged by Miss Burrell.

Mrs. Rose has begun the analyzing of the reports of the National Education Association. The printed cards for the individual papers and addresses have been issued for some time but have not been put into our catalogs owing to the pressure of other work.

There remain at least six important collections for incorporation into the general classification scheme as rapidly as the work can be done:

1. The collections of the state Geological Survey as distinguished from the General Library collections of books in Orton Hall. Separate records and distinguishing marks are necessary.
2. French Literature (authors L-Z) needs to be immediately reclassified and recataloged and incorporated with the rest of this section.
3. Works of the Greek and Latin authors still remain in a temporary classification and should be reclassified in accordance with the general plan.
4. All titles on Religion still await reclassification.
5. Several series of monographs of the learned societies and many foreign sets have never been analyzed.
6. The official publications of the United States, the separate states, and many official publications of foreign countries, are not represented in our catalogue.

#### DEPARTMENTAL LIBRARIES

The report on departmental libraries as submitted by Miss Edna Davis, Supervisor, indicates many points of interest in the relationship of these libraries with each other and with the Main Library collection. There were added to the departmental collections during the year 13,827 volumes. Law (by reason of the special appropriation for books), Education (through gifts of books by classes), and Physics, the newly created departmental library (by reason of transfers from the Main Library) show the largest increases. The report of the Reference Department indicates the use of these collections so far as a record of such use can be made.

A brief word concerning each library must suffice because of lack of space. *Botany and Zoology* (Mrs. Ethel M. Miller, Librarian)

Possibilities of expansion have nearly reached the maximum in this library, to the great discomfort of its public. Certain expansion of shelving and filing equipment must be provided next year.

At the meeting of the Ohio Academy of Science on the campus in April, Mrs. Miller organized a very effective display of samples of the publications received in exchange for the publications of the Academy and for the Journal of Science. Her work was highly commended by members of the Academy and by visitors, and indicated in a most graphic way the value of such exchanges and the extent to which the University may profit by the development of the exchange system. For the Summer Quarter, Mrs. Miller is to be loaned to the



Franz Theodore Stone Laboratory for the cataloging and classification of the books at the Laboratory.

*Brown Hall* (Miss Adah Smith, assistant in charge)

The physical limitations of this library are such that no further growth is possible or desirable under the conditions which exist. The impossibility of controlling the temperature in the room in the winter makes this room a very unsatisfactory place in which to work, and the disintegration of binding and valuable plates continues steadily each year. Space should be found elsewhere in the building for this collection of books in the interest of both economy and efficiency.

*Chemistry Library* (Miss Beulah Parrot, assistant in charge)

In February of this year the steel stack for the stack room was installed by the Snead Company and the necessary shift of the collection made. Certain sets were transferred from the Main Library collection. With the removal of the books on Pharmacy to their new home in the Pharmacy Building, this library should have space for growth for some time to come.

During the year Miss Parrot has checked the list of periodicals indexed by *Chemical Abstracts* and noted the holdings of the University of these sets and their location on the campus in the various libraries. The marking and relabeling of the sets of Chemical periodicals has been completed and the card catalog and shelf list checked for discrepancies.

*Commerce Library* (Mrs. Mildred Watson, Librarian)

It has been necessary to reshelve the entire library during the year, transferring much material to the stack room and putting on the open shelves a different class of material to avoid the losses of individual books. The seating capacity of the room is greatly overtaxed at certain periods, adding to the difficulties of adequate service and the effectiveness of the room as a study hall.

*Education Library* (Miss Loa E. Bailey, Librarian)

Miss Bailey and her assistants have succeeded in making book cards and affixing book pockets to the collection of books shelved in this departmental library. For the special demands of the Summer Quarter the books specified as required reading in Educational courses were sent again to the Education Library and shelved in Room 321, service and administration being entirely in the hands of the staff of the Education Library.

*Law Library* (Mrs. Gertrude Nesbitt, assistant in charge)

Extensive shifting of the book collections was necessary last September in order to make place for the additions to the Law Library collections, and additional shifting will be necessary this September in view of the extensive purchases by the Law School during the year. Recommendations for equipment for next biennium carry an item for the construction of a three-story steel stack to relieve conditions.

The hours at which the Law Library is open have been increased to 10:30 P.M. during the Autumn, Winter, and Spring quarters. Use of the Law collections by students in the departments of Education, History, and Political Science has required that the Law Library be kept open to the public certain hours during the Summer Quarter.

*Lord Hall Library* (Miss Marjorie Cochran, assistant in charge)

This is a small collection of material on special subjects limited almost

entirely to reference use, hence little beyond routine service in this library can be attempted. Book cards and pockets have been placed in all volumes with the exception of the periodical sets in preparation for the adoption of a new method of charging books in all libraries.

*Medical Library* (Miss L. Artice Sinkey, assistant in charge)

The problems of space for readers and for storage of books continues to be a more vexing situation each year. Seats for readers are at a premium certain hours of the day, and the necessity of retaining certain sets of medical periodicals in the Main Library stack room and the division of those that are represented in the collection between the two libraries, is a decided hindrance to the work of the students of the College of Medicine. The problem will be further complicated when it becomes necessary to find shelving space for the books purchased for the College of Dentistry from the grant of the Carnegie Foundation. There is no solution of present problems until it becomes possible to substantially enlarge the space devoted to library purposes in Hamilton Hall.

Miss Sinkey attended a conference called by the Carnegie Foundation at Ann Arbor, Michigan, relative to the choice of material to be purchased for the College of Dentistry and brought back some valuable information as to sources of material available for exchange purposes in the fields of Medicine and Dentistry.

*Orton Hall Library* (Mrs. Helen DeSelm, assistant in charge)

Significant events of the year's work have been:

1. The reshelving of the entire library in accordance with the divisions of the Library of Congress classifications, making sections of material more accessible.
2. An inventory of the collection.
3. Inventory and rearrangement of the maps which form so important a part of the material in a library of this type. The geographical arrangement of the Library of Congress classification was chosen and seems to be meeting the needs of students and department. Additional map cases of more modern type must be supplied soon.
4. The folio maps of the U. S. Geological Survey were bound in individual volumes, and additions are planned for the cases in which they are housed.
5. Through cooperation with the Catalog Department, Miss Frisbie began in June the preparation of an individual catalog of the Geological Survey collection and the assembling of two sets of the geological publications of the several states and territories.

*Cole Memorial Library of Physics*

The bequest of the private library of Professor A. D. Cole to the University and the collection by his friends of a fund for its endowment led to the establishment early in the year of the tenth departmental library on the campus. The library was opened to the public on February 27, 1930. The private library of Professor Cole is the nucleus of the collection, supplemented by a selection of titles from the Main Library collection in the field of Physics. Miss Hoy of the catalog staff rendered valuable service in preparing card records of the volumes comprising this collection.



The departmental libraries contain volumes as follows:

Botany and Zoology .....	7,850
Brown Hall .....	2,965
Chemistry .....	5,340
Commerce and Administration .....	6,395 <sup>a</sup>
Education and Psychology .....	12,648 <sup>b</sup>
Law .....	32,644
Lord Hall .....	4,227
Medicine .....	6,753
Orton .....	10,665
Physics .....	2,271
<hr/> Total.....	<hr/> 91,658

<sup>a</sup> Exclusive of large pamphlet collection.

<sup>b</sup> Includes large pamphlets collection.

#### REFERENCE AND CIRCULATION DEPARTMENT

The work of the Reference Department has followed the usual lines in its service to faculty and students in the location of desired material not immediately or readily available through the ordinary sources of information.

The illness of Miss Alice McKee during the Autumn Quarter and the year's leave of absence of Miss Esther Stroedter have required certain readjustments of the work, notably the return of the duty of checking and recording material received by gift and exchange to the Accession Department. Miss Nellie Jennings filled most acceptably the place of Miss Stroedter during the year, and it is a matter of great regret that the department could not be strengthened for the coming year by the continuance of Miss Jennings' term of service.

Special features of the work of the year carried on in addition to regular duties were the compilation of the following bibliographies:

By Mr. Janeway, (1) an extensive bibliography on "Trial by Jury" for the use of the Ohio State High School Debating League and (2) bibliographies on "Christmas Poems" and "Christmas Stories."

By Miss Jennings, bibliographies on (1) "Chain Stores," (2) "Ohio Mounds," (3) "Finance and Industry," a list of books by Ohio authors for the library of the Governor's mansion, and (4) "Petroglyphs of South America."

In addition all members of the department shared in compiling many short reading lists for faculty and student use, and a number of special subjects were worked up and sent out by mail in answer to requests from coaches of debating teams throughout the state.

More and more demands are made for assistance in cooperative enterprises in which we are asked to list the holdings of our Library. Such enterprises this year included an extensive bibliography on "Water Transportation" to be issued by the Transportation Committee of the Special Libraries Association and a list of our holdings of Serial Publications of Foreign Governments, which will be published by the H. W. Wilson Company under the auspices of the American Council of Learned Societies, American Library Association, and the National Research Council. This work was done by Miss Alice McKee. Miss McKee also checked *Supplement to Granger's Index, 1919-1928* and Mudge's *Guide to Reference Books*, as an indication of the percentage of the entries already in our collections and as a guide to further purchases. Miss Green, of the Accession Department checked several volumes of the Cambridge

History of English Literature for the English Department for similar purposes.

The work of inter-library loans is a very important feature of the work of the Reference Department. Something of its scope may be seen from the following report:

## BOOKS BORROWED

Books borrowed for faculty members.....	184
Books borrowed for graduate students.....	123
Books borrowed for two individuals not faculty members or graduate students .....	71
Total number of books borrowed.....	378
Number of persons for whom books were borrowed.....	98
Number of libraries from which books were borrowed.....	46
Requests not filled .....	22

## LOANS TO OTHER LIBRARIES

Total number of volumes loaned.....	388
Number of libraries and institutions.....	94
Number of Ohio libraries served.....	30
Libraries and institutions outside Ohio.....	64

## GRADUATE LOANS

Number of volumes loaned .....	50
Number of students borrowing books.....	14
Loans to members of Ohio Academy of Science.....	2
Loans to Engineering Experiment Station.....	..
Number of volumes loaned .....	3
Number of persons borrowing .....	2

The question of opening the Library on Sunday has been a topic which has provoked much discussion and editorial comment in the columns of the *Lantern* for some quarters. Formal petition for opening from 2 o'clock until 6 on Sunday was made by the Student Senate during the Autumn Quarter, and permission was granted by the Board of Trustees to try the experiment during the Winter Quarter.

The regular members of the Reference Department, assisted by Miss Davis and Miss Green, took charge of the Library in rotation on successive Sundays; there was also a corps of student attendants at the desks in the Reserve Book rooms, the Periodical Room, the Fine Arts Room and the Delivery Desk. Reports from the various desks indicate that the students took advantage of the opportunity in a serious way, the Reserve Book rooms, the Periodical Room, and the Delivery Desk being most constantly used.

From a study of the books drawn for use on Sunday, it appears that the use of the periodicals exceeded any other class of books and that students apparently chose Sunday afternoon for the writing of term reports and special papers. The problem of maintaining quiet in the reading rooms in the interest of serious work did not prove difficult after the first two or three Sundays. That element in the student body to whom the opening of the Library on Sunday was merely an additional opportunity for social activities, proved to be greatly in the minority and gave little trouble. The result of the experiment in the Winter Quarter seemed to warrant the continuance of the experiment during the Spring, and the increased attendance in this quarter seemed to be ample justification for the continuance of the experiment.



Attendance records for Winter and Spring Quarters are as follows:

WINTER QUARTER	
Total attendance .....	3,457
Average attendance .....	432
SPRING QUARTER	
Total attendance .....	5,023
Average attendance .....	502

The principal event of the year, however, followed the installation of the new steel stacks in the basement rooms, in the corridor of the third floor and in the main stack room, in accordance with the appropriation made by the Legislature. The Snead Company was the successful bidder on the contract, and the stacks arrived for installation early in January. Wooden cases were located wherever they could be placed on the basement floor, and one room was cleared so that installation could begin. As fast as the rows of stacks were erected, the work of transferring material to the new shelves was begun, and the floor cleared in Room 2 for the erection of the new stack in that room. The same process was necessary in clearing and replacing the material from the stack in Room 3.

To the careful planning of Miss Edna Davis and to her skill in directing the complicated series of moves so that a minimum of this material needed to be handled twice, the Library and the University is greatly indebted. To the corps of twelve of our student assistants who worked from eight to twelve hours a day during the short recess periods following the Autumn and Winter quarters in order to complete the move before normal activities were in force, a generous and deserved tribute of service well and faithfully rendered is due. The moving of over 250,000 volumes is not a small task physically. When that move has to be made in stack rooms already crowded to capacity, and when it is recognized that every book in the General Library, with the exception of a few hundred volumes at one end of the basement stack room and the contents of eight small seminar and work rooms on the third floor, changed location during the Winter Quarter with so little interruption of service that the University public at large was unaware of the move, the skill and efficiency with which this operation was planned and executed deserves special commendation. As a result of the move, collection of books hitherto scattered over three floors have been assembled in one place, a certain degree of expansion has been provided for at least a year or two for new additions to the library collections, and 149,000 duplicate volumes and pamphlets have been collected from various quarters, listed, and arranged on shelves where they are accessible for use.

In a year marked by such numerous changes, the Librarian wishes to express his unqualified appreciation of the loyal cooperation and efficient service rendered by the staff in the varied activities of the year. To the University public at large, who have been patient under the inequalities of service which such conditions inevitably impose, grateful recognition is made of the consideration shown.

## REPORT OF DEAN OF WOMEN

ESTHER ALLEN GAW

A brief description of four of the past year's projects will be made in the attempt to explain our manner of working. The *first* of these concerns the supervision of the students who work in households in Columbus and receive in return their room and board. After several attempts, we have finally been able to define the amount and kind of work which reasonably should be expected of a self-help student, and what she should receive in return from the housewife. We found a great deal of irritation in this relationship. Some housewives felt that the students were not doing their part, while some students felt that they were imposed upon. Depending upon the individual case, either of these conditions might exist.

In order to prevent such irritation and misunderstanding, we are asking both the student and the housewife to state clearly their mutual relationship before they enter upon it. For this purpose we have worked out blanks which are studied and filled out by both parties, and have devised blanks for report at the end of each year. These devices of self-evaluation seem clearly to have established in many cases a very satisfactory working relationship. They are supplemented by personal conferences with the student and the housewife. Mrs. Linn bears the brunt of this project.

We consider this an educational experience. Both the student and the housewife are helped to look at the situation clearly and definitely and to foresee possible difficulties. They are also helped to solve difficulties which have not been anticipated. Students sometimes obtain this work through friends or relatives without coming to us, or even notifying us until the time of registration. In these cases, where we do not have the initial educational contact, serious difficulties often arise. We wish therefore in the future to give such publicity to our service that there will be no students placed in homes without our mediation. Some interesting facts concerning self-help students are in the article "Techniques used in the Office of a Dean of Women," *Educational Research Bulletin*, Vol. IX, No. 11, May 28, 1930. A graduate student is also at the present time making a thorough survey of the academic success, hindrances, and economic backgrounds of these undergraduates, which promises to be illuminating to us in our future development of this responsibility.

A *second illustration* of our accomplishment is the self-survey of the work of our staff and that of the superintendent of the dormitories, to the working-out of which all those concerned contributed. From group discussions we are able to state a delimitation of our respective duties and responsibilities in the program for the housing and education of freshman women. The general statement of the division of duties is as follows:

The Superintendent of the Dormitories and her several staffs will solve the immediate problems of the halls, with the cooperation and assistance of the student assistants and of the freshmen themselves. She will give the student assistants the necessary training for such a program.

The Dean of Women and her staff will conduct the education of the stu-



dent assistants so that they will develop (1) a better understanding of themselves and of the freshmen, and (2) better permanent techniques of solving the problems of personal adjustment in the freshmen dormitories.

Growing out of the above statement of duties, our staff has worked out a program for the work next year, which will not be given in great detail in this report. It is enough to say here that we have a much more definite and probably a more workable scheme for our contacts with the student assistants and with the freshmen than we have been able to provide in the past two years of experimentation. One healthful part of the program is the definite understanding of what we shall assume to be the responsibilities of the Dean of Women and her staff. The older women connected with the housing in university halls have made a survey of their duties along the same plan used by the student assistants.

The *third illustration* will come from such a self-survey. The student assistants were asked to answer questions concerning the progress with the freshmen. Through the answers to these questions they frankly showed how they thought they had been successful or unsuccessful with the younger students, what they had learned from being in the place of advisers, and what suggestions they would make for the improvement of the system. Another illustration of such a self-survey is the one concerning "quietness" given in the Bulletin, and an unpublished one is a statement of "infantilisms" observed in the dormitories. We have incorporated many of the student suggestions into our plans for next year. The best part of these surveys, however, was getting the students to state these things for themselves.

The *fourth illustration* is that of the most complete self-survey by the students which has ever been made on this campus. It is a survey made by the twenty-eight sororities of Panhellenic. Such a study was possible through the kindness of the Bureau of Educational Research, which paid a few hundred dollars for a full-time worker for four months. Miss Corinne Johnson was put on this problem, which is now in form to be submitted to the groups in Panhellenic for further consideration in the year 1930-31. Through this study there are stated at least eighteen projects, any one of which would take almost the whole available time of the groups in the organization for a year, and which could be studied objectively by the undergraduates themselves. But better than the possibility of any objective survey is the accompanying attitude of the members of the sorority groups. Undoubtedly there still exists much blind observance of short-sighted sorority convention, but there is also a perceptibly different conception by many of the sorority members of the problems which come to them. This appears to be due to the fact that they have been able to get a look at themselves through taking part in the discussions which were necessary for the survey.

#### PLACEMENT BUREAU

As the two absolutely new projects which have been undertaken this year and which are most important, the Part-Time Student Placement Bureau and the completion of adequate record blanks for this office may be noted.

Part-Time Student Placement seems to have been done by the Dean of Women on this campus until perhaps six or seven years ago. Then it was transferred to the Young Woman's Christian Association. That organization found that for many reasons it could not cope with the problem adequately.

Therefore in 1929-30 this work was again returned to the Dean's office, and an assistant provided for ten months of the year. Miss Betty Lee McCord has admirably filled this place. Reference to the Bulletin will show the amount of placement, kinds, remuneration, and so forth, done during the Fall and Winter quarters of this past year.

The weak point in undergraduate part-time work is finding openings. The University uses a great deal of student help, but most of this work is given directly by faculty members to students whom they know, irrespective of the actual economic need of the students. We have informed the departments on the campus of the need of many students for work to maintain them in college, and are beginning to develop some call for them. Another contact which needs development is that with the community of Columbus. Dr. Grace M. Zorbaugh, who comes to us in the Autumn of 1930, will give much of her time during this coming year to this pressing duty.

We consider placement as an educational project. We know that the students doing part-time work need much help from us in getting established and in continuing successfully in work while in college. We know, also, that the employers need to be trained so that they know that they can use part-time workers. The technique of part-time placement, not only of undergraduate women, but also of graduate women who are married, is one which the society of the future must learn. University experimentation with this problem, if faced properly, may rightfully become fruitful in suggestion for the community and the state.

#### RECORD CARDS

The second new project brought to completion this year is the development of adequate record cards for this office. My research assistant has been gathering data for the past three years, to find out what information we should have concerning the undergraduate women. This study is described briefly in the Bulletin and more fully in Mrs. Kurtz's dissertation. As a result of her study we now have two cards on which we will record information concerning undergraduate women. One is the "Year Card," a registration card on which are many items sure to change from year to year. This is the card used for the quarterly required registration. The second card is called the "Permanent Record Card" and is filled out at the time of matriculation. It contains information which needs to be put down only once while in the University. With these as a nucleus and the information which accumulates during the years of college life, we have in our files quite an extraordinary history of each undergraduate woman on the campus. All records are for the sake of foreseeing difficulties or possibilities of development. As they accumulate we can study them and through our increased understanding improve suggestions to the students for self-evaluation and education. Further illustrations of our manner of working could be given. But enough has been given to show that "we are agreed to do nothing for our students but to help them with all our minds and strength to do everything for themselves."

Another kind of work which comes to us and which we cannot entirely refuse to do is taking part in community or national projects. The Dean made a report at the Vocational Guidance Association at Atlantic City in February, attended one of the committee meetings of the White House Conference in Chicago in April, and with her staff has been very active in the National and Ohio Associations of Deans of Women. She and her staff were



responsible for the meeting in connection with the National Education Association in this city in July. All have to do more or less speaking in the state to show the friendliness of the University and to make plain the attitudes of the University.

It is hoped that this general description of our work will give assurance that we are cooperating with the best expressed wishes of the Trustees, the President, and the Faculty of the University. All members of the staff are tremendously interested in the most effective development of The Ohio State University and desire nothing better than to foster that growth in every possible way.

## REPORT OF DEAN OF MEN

J. A. PARK

How much a great University should concern itself with the life and activities of its students outside of the strictly classroom hours has always been an interesting question. To disregard such activities entirely is to disregard possibilities of education in a large area of life. To dictate entirely what such activities shall be is to rob the individual of his greatest opportunities for initiative and of much of his chance for self-development. To determine the degree to which the University shall function in this field is the privilege and responsibility of the Dean of Men.

### HOUSING BUREAU

In July of last year the Men's Housing Bureau was set up in this office. Mr. F. J. Milligan was added to the staff on a part-time basis to carry on the program of the Bureau. During the summer, 458 rooming houses were inspected, a list of approved rooms was compiled and with the opening of the Fall Quarter the office was able to supply complete information to students desiring rooms. Through the year this list has been maintained and added to, disputes between landladies and students have been arbitrated, and a steady effort made to raise the standard of rooms used by men students.

With Mr. Milligan assuming a full-time relationship for the next year, a more careful supervision becomes possible. With the cooperation of the city Health Department, no house will be approved unless it has first received a rooming-house permit from the above department. The inspections by this office will be continued as new houses are listed. The University Y.M.C.A. staff is to cooperate with us in this. Some of our poorest rooms will be dropped as others of higher standards are added. With a steadily increasing enrollment, we are rapidly approaching the place where no more desirable rooms will be available in the University district. The answer to this is, of course, dormitories under University supervision. I hope that we can in the near future make a beginning on a men's dormitory program.

### ACTIVITIES

Among the duties of this office may be listed service on the Student Loan Committee, the Council on Student Affairs, the Committee on Conduct in Examinations, and the Committee on Superior Students. The Dean of Men acts as faculty adviser to Phi Eta Sigma, the freshman honorary scholastic society. He also serves on the local, state, and national councils of the Y.M.C.A.

To this office are referred requests from men students for deferred payment of fees and for remission of fines for late registration. Since January 1, two hundred and five students and faculty members have had occasion to use our services as a Notary Public in connection with teacher's oaths, lost fee cards, etc.



Last fall 70 men students were secured to act as group leaders in the Freshman Week program. Fourteen hundred letters were sent to parents of out-of-town men inviting them to consider the Dean of Men as only one of the University staff eager to see that each boy had every opportunity that the University could give him. Throughout the year, letters were sent to parents in recognition of scholastic or other achievement of their boys and several hundred letters in reply testify to the appreciation with which this policy is regarded.

We have continued our practice of visiting men ill in the University Hospital, and where we felt it desirable have visited parents whose sons have been taken from them during the school year. Each Tuesday evening we have had a group of students in the office for an informal discussion of problems which they felt concerned their relationship to the University. This has been an enjoyable contact with some of our keenest students.

The Student Senate and Student Court have enjoyed a growing esteem on the part of the student body, and they are composed of a substantial group of men and women. Our participation with these groups has been very satisfactory. A dignified system of elections has been worked out, and the organizations themselves have functioned very smoothly. The subsidy from the University has placed them in a position of independence of the usual money-raising projects.

During the year the Dean of Men attended and participated in the meetings of the Ohio and the National Associations of Deans of Men. June 12-20 he led a discussion group at the Lake Geneva Student Conference. Toward the close of the year a Fraternity Presidents' Council was formed to replace the Interfraternity Council which had become a nonentity. The new group has taken hold in a splendid manner and has assumed responsibilities which no previous group has ever cared to undertake. It is expected that through this organization the office of chapter president will become one of the most responsible and sought-after positions on the campus. Mr. Milligan takes this organization over as one of his major responsibilities.

#### STUDENT AUDITOR

Miss Agnes Marshall, completing her first year as Auditor for Student Organizations, has done a fine piece of work with a task of rapidly increasing proportions. More than 175 separate accounts are handled, and the budgets will total approximately \$300,000. Her detailed report will be printed separately. We have been using student help increasingly through the year and will soon be justified in adding a full-time assistant. The auditing charges would pay a substantial proportion of such a person's salary and would make possible an extension of the service to fraternities and sororities, a thing which is now possible upon only a small scale. The training received by student treasurers through this office is a thoroughly practical piece of educational work.

Certain facts such as the rate of progress of men living within and without fraternities, the effect of certain activities on scholarship, and other situations that might be mentioned should be known in this office. Such simple investigations as these should not be dignified with the name of research, but their usefulness is apparent. It is recommended that in July, 1931, an assistant be added to the staff to handle this work and assist in the program of the Men's Housing Bureau.

The cooperation of members of the University staff with whom this office has had to deal has been all that could be desired. The attitude of students toward the Dean of Men is hardly up to the author of this report to indicate. Last fall the mother of a freshman boy began her letter with, "I judge that your position is to represent the heart of the University." If the writer meant by "heart" the affection which the University has for her students, which of course she did, the Dean of Men would be glad to be so characterized.



## REPORT OF AUDITOR OF STUDENT ORGANIZATIONS

AGNES M. MARSHALL

I submit herewith a report on the auditing of the accounts of the student organizations at the Ohio State University during the school year 1929-30.

The auditing system has covered two classes of organizations: first, the general student organizations that are required to submit their books; and second, fraternities and sororities to whom the service is open if they wish to make use of it. The student treasurers have cooperated splendidly with this office on the whole, and have shown marked ability in handling their accounts.

The receipts of the one hundred and fifty-one student organizations audited totaled \$144,342.55, which is an increase of \$10,559.68 over the 1928-29 figure. Eighty organizations showed a profit on the season's operations, sixty-four showed a loss, which was cared for by balances on hand at the beginning of the year, and the rest showed neither gain nor loss. The net gain for the year was \$14,405.21, and balances totaling \$28,679.39 were remaining at the close of the year. The division of profits taken out by the *Agricultural Student, Makio* of 1929, *Makio* of 1930, *Ohio State Engineer, Sun Dial* of 1928-29, *Sun Dial* of 1929-30, and *Scarlet Mask* totaled \$13,499.67; so the actual cash balance remaining at the close of the year was \$15,179.72. This means that there was an actual increase of cash on hand of \$905.54 over the amount present at the beginning of the season.

Twenty-five organizations had receipts totaling more than \$1,000. Four had receipts totaling more than \$10,000—the *Makio*, *Y.M.C.A.*, *Scarlet Mask*, and *Sun Dial*.

The accounts were audited by the same method as was used in former years, which is set forth a little later in this report. Treasurers were instructed as to the proper use of the prescribed bookkeeping forms, which were furnished at cost. All accounts were audited at least once a quarter, and more often when it seemed necessary. Finding the present simple bookkeeping forms inadequate for the volume and kind of business transacted, the *Makio*, the *Y.M.C.A.*, and *Scarlet Mask* are planning to make use of forms more suited to their needs during the coming year.

The four organizations from which faculty recognition was withdrawn because of failure to submit books for the 1928-29 audit—*Avukah*, *Hillel Players*, *Kappa Beta Pi*, and *Phi Delta Gamma*—were reinstated in the fall of 1929 when the necessary regulations were followed.

Twenty-one new accounts were added to the list during 1929-30. Eighteen were dropped as inactive accounts. Two organizations combined as one—*Phi Delta Gamma* and *Forum Society*. One graduate organization, *Phi Delta Kappa*, was given permission to submit an authentic copy of the detailed audit made of their accounts by their national organization.

The following five organizations failed to submit their accounts for audit: *The Criterion Club*, *Graduate Women's Club*, *Liberal Club*, *Loon's Glider Club*, and *the Newman Club*. Therefore, it is recommended by this department that

faculty recognition of these groups be withdrawn because of violation of Faculty Rule 344.

Your attention is called to the very successful financial reports of the *Agricultural Student*, Class of 1930, *Makio* of 1930, Neil Hall, the *Ohio State Engineer*, Pershing Rifles, Phi Eta Sigma, Scarlet Mask Club, Student Organizations, *Sun Dial* of 1928-29, *Sun Dial* of 1929-30, Tau Beta Pi, Townshend Agricultural Society, University Band, and University Chorus.

Twelve organizations left unpaid bills amounting to more than ten dollars at the close of the year. They are: Aeronautical Society, Cadet Officers' Club, Class of 1931, Freshman Y Council, Horticultural Society, Interfraternity Council, Interfraternity Pledge Council, Men's Glee Club, Pi Delta Epsilon, Strollers Dramatic Society and University Players, *Ohio Commerce*, and Varsity "O." The deficit of Strollers Dramatic Society and University Players, now combined, is of long standing. The alumni of Strollers have given a production to raise money to clear up the old debt. As yet a report has not been made to this office, but it is expected that it will be materially lessened. The *Ohio Commerce*, Pi Delta Epsilon, and Varsity "O" were inactive during the past year, and their debts, too, are of at least a year's standing. The Music Department directly supervises the finances of the Men's Glee Club. Their deficit was caused by the heavy expenses incurred in participating in the National Contest in New York City, with no corresponding income to cover it. The Interfraternity Council has been discontinued, and their financial affairs taken over by this office to be cleared up. The deficits of the Aeronautical Society, Cadet Officers' Club, Class of 1931, Freshman Y Council, Horticultural Society, and the Interfraternity Pledge Council are not large, and can probably be taken care of easily during the coming year.

In studying the financial statements of practically every large social function given by student organizations during the past year, it is shown that money was lost. Even the Junior Prom made only a few dollars. This is partly due to the fact that so many dances have been given that the student body cannot support them all, and partly due to the fact that very heavy expenses have been incurred. An effort will be made during the coming year to remedy this situation.

I regret the necessity of calling your attention to the poor report of the business manager of the *Makio* of 1929. There is no check on the finances and financial policies of the student publications before they are incurred, except that the *Makio* printing, engraving, and photography contracts must be approved by the *Makio* Board. When the business manager cooperates with this office, there is no difficulty. In a case such as this, when he does not cooperate, much of the damage is done before anything is known about it.

Therefore, I recommend that some system be provided whereby expenses of the business manager and editor and division of profits of student publications be authorized before the checks are written. I do not wish to recommend anything that will take away any of the initiative of the student managers, but feel that so much money is involved in these two types of expenses that some regulation has proven to be necessary to safeguard the interests of others concerned, when the occasional person appears who is not willing to cooperate.

I also wish to call your attention to the large profits made by student publications, particularly the *Makio* and *Sun Dial*, and I recommend that some investigation be made as to whether this is justified or not.

Eight fraternities and one sorority made use of the auditing service



monthly, and single audits were made for two other sororities. Bookkeeping forms, adequate for fraternity use, were sold to these organizations at cost. Assistance in budget making was given to all those requesting it. At least two typed copies of the reports were furnished the fraternities and sororities, but for obvious reasons they are not published here. With the present time and the facilities available, the service cannot be extended in this office to more than one or two additional groups. However, proper financing and proper recording of it are subjects so closely allied with the real welfare of the groups, that it would be worth while to expand in this field.

The supervision of the registration of all social functions has been continued during the past year, and cooperation from chaperons has been satisfactory.

## STUDENT SENATE REPORT

*Secretary-Treasurer, FOY D. KOHLER*

The aim of this report will be to give an idea of the accomplishment of this, the first year in which the men's and women's student governments have been combined with the Student Senate. The growth of the Senate work, functions, and power have been tremendous during this year, just as they have ever been since the formation some 13 years ago of Boost Ohio. Since the merger of Boost Ohio and the Men's Student Council three years ago, and the amalgamation with the women's organization last spring, Student Senate has grown, expanded, assumed, and had thrust upon it continually added and more important duties, privileges, and powers.

It is only natural and to be expected that this year has been the most successful in the history of the Senate just as every succeeding year should be. Although we were hampered and most severely depressed by the death of our leader, Samuel J. Seibert, we were nevertheless fortunate in having available as his successor one who has very capably and worthily filled the office, Frank Teegardin. The members of the Senate have been enthusiastic and faithful in the discharge of their duties, and the assistant secretaries and freshman secretaries have been loyal, capable, dependable, and zealous in carrying out the administrative work of the office. My sincerest thanks are given to the senators, the assistant secretaries, and the freshman secretaries.

Any resume of the work of the year would fall naturally into four divisions: the legislative work of the Senate, the administrative work through the office and committees, the prospect work, a phase which the secretary has specifically emphasized, and the conduct and management of the Lecture Course.

### THE LEGISLATIVE ACCOMPLISHMENTS

The year has seen many changes and a great development in student government and the regulation of student activities.

Perhaps the most important of these has been the continued growth in power and prestige of the Student Court. The Court has during the year handled a great number of cases in a manner which has well merited the praises of the faculty and the entire student body. A significant extension of power was that of arbitration in rooming-house controversies. Pending is a proposal by which the Court would be the last appeals in interfraternity difficulties. Its capable administration under the leadership of Chief Justice Stone has brought it the respect of everyone connected with the University.

The Senate requested that for the service of the students the main library be opened for use on Sunday afternoons from 2:00 to 6:00. This request was granted by the University and the plan has proven very successful.

A new plan has been instituted for the election of the cheer-leaders to go into effect next year, by which the position will be a competitive one during the freshman and sophomore years, the head cheer-leader to be a junior. I feel certain that this will be a great improvement over the old method, which was this year very certainly inadequate.

The old *Y Men's Handbook* and the *W.S.G.A. Handbook for Women* have



been put in charge of the Senate under a competitive plan and both combined into the *Freshman Handbook* of the University.

The Senate decided that in the future the presidents of the various organizations entitled to representation should represent their respective groups on the Senate. I am sure that this plan will secure for the Senate even more capable personnel in the future than we have had in the past.

Growing out of some losses of students' property on the campus, the Senate had a committee to consider the problem. At the request of the Senate, the University established a lost-and-found bureau operating through the office of Mr. McCracken, and the committee is experimenting with a locker device which, if successful, will be recommended to the University for installation.

When organization and cooperation among the fraternities had reached a point of chaos, the Senate sponsored a banquet for fraternity presidents in an attempt to find a solution to the problem. After some consideration and some difficulty, a plan has been proposed which is rapidly receiving the approval of a large number of the fraternities, and which will probably be the answer to the interfraternity question.

The Senate approved and supported a movement for the organization of unaffiliated men, which has not yet matured into any solid organization, but which is, I think, a promise of what will be done to this end in the future.

Requests, which I am certain will be granted, have been made to the Athletic Board concerning the use of student books. We have asked that the picture identification method be used in student books, none of them to be sold to outsiders, and that the students be seated together in sections of the A and B decks of the stadium.

The Senate has requested that the manner of awarding degrees at convocation be changed to be in accordance with the weight of the degree to be received. That is under consideration by the University at the present time.

A very significant change has been made in the election laws, providing for open campaigns, the use of meetings, and various kinds of publicity. Already in the spring elections the result in increased interest and voting has been gratifying.

#### ADMINISTRATIVE WORK

Numerous and varied tasks were accomplished in the line of general activities and administrative work. I will try to outline the more important of them in chronological order.

The first undertaking last fall was the sale of freshman caps through our arrangement with Logan's Supply Store. Nearly thirteen hundred caps were sold, which is a world record, I have been informed, netting the Senate about \$200 in the fall sale. A number more have been sold this spring for which we have not as yet received a remittance.

The first event handled by the Senate last fall was the Cane Rush. Due to the early date and too little preparation and publicity, the Rush was not very successful. If there is to be a cane Rush next fall, plans should be made for it during the spring of this year.

It was decided to hold Dad's Day at the time of the Iowa game. There were about 25 dads of the football men who were introduced to the crowd between the halves. The band marched in "Dad" formation, and a number of the organizations of the campus entertained their fathers on that occasion.

The secretarial force as usual took care of the pennants, the decoration



of the campus with pennants, and the entertainment of the press men at the football games. We now have 32 of the large stadium pennants and 160 of the campus pennants.

Before each out-of-town game and before the Illinois game, a football rally was held with the cooperation of the cheer-leaders and the band, to encourage and maintain the enthusiastic support of the student body. The rallies this year were the best that we have had in many years.

Again this fall the secretaries aided in caring for the housing of delegates to the State High School Journalism Convention held here.

Homecoming occupied the interests and efforts of the Senate some time before the Illinois game. Mr. Chenoweth and Mr. Teegardin headed the committees in charge. During the week-end the campus was very appropriately decorated. On the Friday before the game an unusually successful dance was held at Valley Dale. On Saturday morning a feature of the homecoming celebration was a parade under the direction of Ben Backlay. The ceremonies at the game were very well planned, featured by a visit of the Goodyear Blimp "Defender," which carried the Queen to the game. The week-end was the most successful in some years, and more than paid for itself financially.

After the close of the football season the Senate cooperated with the Athletic Department in arranging for the Football Appreciation Dinner. After the close of the basketball season we gave similar aid with the basketball banquet.

Senate cooperated with the Ohio Relays management in conducting an attendance contest and campaign, decorating the campus, caring for the information booths, and the housing of guest athletes. We sponsored, with the aid of the Franklin County Alumni Association, the Ohio Relays Banquet, at which time the Miner Trophy was presented to the Stivers basketball team, as state basketball champions.

We are planning to help conduct the annual Scholarship Day which will be held on Thursday night in the Chapel.

Our Senate Committee is now making plans for what promises to be the most elaborate and appealing Traditions Day that we have ever had. Contemplated are the May Supper, a dance, a Student-Faculty Minstrel Show, and other features.

The deadline has recently passed in the Alma Mater Song Contest which we are sponsoring with the aid of the Alumni Association, and the judging will be held in the near future for a new Alma Mater Song. The prize of \$500 has been offered by James Lincoln of Cleveland.

These are the more important of the accomplishments in this line of activity. The range of events has been large, and I feel that our success should encourage even greater efforts in future years. With the establishment of confidence and respect, we are having continual opportunities to extend the range of our interests, and are constantly being encouraged to undertake all projects of student interest.

#### PROSPECT WORK

There were at the beginning of this year several conditions and events which put practically the whole burden of prospect work on the shoulders of the Senate. Having accepted the responsibility we extended the plans beyond any limits that had been imagined in former years. We have specially emphasized this work during the past year, feeling that it is vital to the University. If Ohio is to be a leader always, we must attract here the leaders from the



high schools of the state in every line of activity. To maintain our reputation for fine, sportsmanlike athletics, we need the best of the athletes; to build our cultural reputation and strengthen and upbuild our student life we want the finest students and leaders in every activity.

We have on our files some sixty exceptional athletes, about two hundred star athletes, about one thousand good athletes, and about one thousand men specially selected for their scholarship or leadership abilities. To them we send copies of the *Student Senate Annual*, other publications of the campus, and any information that they may desire concerning the University. With the best we try to establish personal contacts through visits to the campus or through personal letters. The pennants and banners belonging to the Senate have been used throughout the year in "go to college" campaigns all over the country.

Actual production of the Senate movie has been progressing slowly. It is now, however, well under way so that we believe it will be completed during next year, when it will be a valuable aid to us.

We cooperated with Mr. H. R. Townsend on the state basketball tournament. In conjunction with the *Sun Dial*, we again promoted the State Art Contest, which gives us a line on some of the best high-school artists of the state. We are considering also the Ohio High-School Annual Contest, which will give us an entry to high-school journalists, and the contents of the books will give us much valuable information regarding the students of the various schools.

At the time of the Relays, we were host to about one hundred and twenty-five of the choicest athletes of the state and near-by schools, entertaining them with a banquet, at the Relays, and at the Ohio Theater.

We have this year a clipping service on all the high-school athletic contests over the state, which has been invaluable. We also cooperated with the Education Department in the recent State Scholarship Contest.

#### THE LECTURE COURSE

From a financial viewpoint, the Lecture Course was a decided failure. We have a deficit of \$769.25, which amount has been temporarily borrowed from the treasury of the Student Senate.

The Senate as sponsors, will, of course, have to stand a large part of this amount; but I am certain that we shall be able to find aid in underwriting the course from the organizations which were interested in the project at its inception. They will be approached soon on this matter.

I really feel, though, that we have purchased nearly that amount of confidence in the Student Senate. Never so much as at the time of the lectures was I aware of the faculty interest in this project of a student organization. I am happy that Senate has decided to continue it, and feel that, with efficient management and a better selection of speakers and dates, it will soon become a real success.

I consider it quite noteworthy, however, that the Senate could and would bring to the Ohio State campus six such outstanding men as Butler, Mac-Millan, Skeyhill, Von Luckner, Noel, and Powys.

I wish again to extend my appreciation to the members of the Senate, the assistant secretaries, and the freshmen secretaries for the loyal cooperation and the enthusiastic efforts of the year. I appeal to the new members of the Senate to put their shoulders to the wheel to the end that the achievements of the coming year shall eclipse those of the year just passed.

## YOUNG MEN'S CHRISTIAN ASSOCIATION

*Executive Secretary, GLEN D. DALTON,*

It is with a sense of great pleasure and privilege that we submit this annual report to the Advisory Board, to the President of the University, to the students, and to our alumni friends everywhere. We feel that this year has been by far the most successful of our three years as Executive Secretary of the Association. Our reasons for feeling this way comprise this report.

While the Board for the most part may be acquainted with the set-up of the Association, certain members of it undoubtedly will appreciate a foreword explaining briefly our organization. The Association is at heart a student organization. If it is to serve its highest and most complete purpose, it must ultimately be controlled and directed by students. The place of the secretaries then obviously becomes that of counselor and adviser. The genius of the Student Y.M.C.A. lies in the voluntary, unselfish service of students in the interest of their fellows that the life and ideals of the Master may be made more real not only to those who are served but to those who serve. If our Y.M.C.A. is to be truly a Student 'Y,' then students must play the major rôle in its program. It is with this idea in mind that the secretaries work. More and more responsibility has been given to the students that they might "grow in wisdom and stature."

Our program is centered around three student organizations within the Association: the Freshman Council, composed entirely of first-year men; the Sophomore Council, composed of sophomores who for the most part were active members of the Freshman Council; and an Upper Class Cabinet made up of juniors and seniors, almost all of whom were actively engaged in the programs of the freshman and sophomore organizations. Each of these groups is divided into committees, and each committee has its chairman. In the Councils the chairmen and the officers make up the executive committees. In the Cabinet there is no Executive Committee. The members of the committees in the Councils are also members of the same committees of the Cabinet. In this way material is developed for Cabinet leadership when the men become juniors and seniors. There are, too, Council committees having no counterpart on the Cabinet. Each organization has a secretary as its adviser. Mr. Thomas, as Freshman Secretary, has served as adviser to the first-year men; Mr. Willits, to the sophomores; and the Executive Secretary, to the Upper Class Cabinet. However, each secretary has had definite responsibilities as adviser to certain committees of the Cabinet. What is true of the inter-relationship of the secretaries to the service program of the Association is also true in regard to the administrative phase of our work. Our aim is to make in the fullest way possible a unified and cohesive responsibility of every department of our program. We feel that this joint relationship and mutual responsibility makes for a much deeper appreciation of the other man's duties, and that we can best serve the work to which we have dedicated our lives by sharing one another's responsibilities. Follow now some of these responsibilities.



## HANDBOOK

The *Handbook* has taken another step forward in becoming a campus-wide publication. Just a few years ago the *Handbook* was a small publication, the expense of which was borne by the Lazarus Company for advertising purposes. The first venture in making the *Handbook* a really usable publication came in 1925 when we published one that involved a budget of \$700, nearly \$600 of which was paid for by advertising. During the last two years the *Handbook* has had a budget of nearly \$900, and has cost the Y.M.C.A. nothing, not even the cost of mailing to the out-of-town freshmen. This has been due to the business managers of the publication, Mr. McNeill and Mr. Guthrie. At the suggestion of the Y.M.C.A., next year's *Handbook* will be a strictly all-campus enterprise. It will for the first time in years be a men's and women's joint book. The 'Y' will continue to be represented in a very fine way, however. Most of the candidates for editor and business manager are members of the Freshman Council, and the Freshman Secretary is to continue as adviser to the publication. The editor and business manager will probably be members of the Cabinet as they have been in the past.

## THE FRESHMAN COMMITTEE

The outstanding accomplishment of this committee was the Freshman Camp held at Camp Willson, Bellefontaine, Ohio, September 21 to 24. Seventy-five first-year men attended. The Camp was an outstanding success. Here freshmen were helped to bridge the gap between high school and college. Fraternities, activities, scholarship, friends, ideals, religion, and other vital subjects were discussed. The acclaim of the worth of the camp is perhaps best illustrated by the fact that all those asked to aid in its leadership, including faculty and students responded willingly—not one refused. The Camp for next year is already under way. Nearly a thousand folders have been mailed to outstanding high-school men who are planning to attend the University next fall, and everything points to a capacity Camp in September.

## CHURCH AND CONFERENCE

Three Go-To-Church Sundays have been sponsored by the Association. These events have doubled the attendance of students. The Freshman Council conducted quite an exhaustive survey of the churches in the University district. They had a twofold object in doing it (1) to secure a student estimate of the work of the churches, and (2) to stimulate a larger interest in the church. Fifteen churches were visited by forty members of the Council. In all of these undertakings we have had the cooperation of the churches. A great deal still remains to be done, however, if the students are to be won to the church while they are in college. The students' apparent lack of interest in the church is not alarming to us. We feel that after these young men and women find their places in the life of their respective communities, there will be a renewed interest in the church.

During the winter the Cabinet held a number of devotional services on Sunday mornings. The attendance was not large, but the services were valuable nevertheless. We hope they will be more successful next year.

Five students attended the Training Conference in Cincinnati.

Prospects for a large delegation to Lake Geneva are very bright. Last year we had 32 there. We are hoping for 35 this time. A Geneva banquet at which 64 were present aroused a great deal of enthusiasm. The Board will be

interested in knowing that five colored and six foreign students are planning to be in our delegation.

Mr. Park, our Dean of Men, has been invited by the Regional Geneva committee to serve as a counselor at the Conference. Members of our Board would find attendance at this Conference very profitable.

The two Councils have each held retreats every Quarter this year. Two of these were joint retreats, and one for the members of the individual Councils.

There is great value in these retreats, and we should have more of them. The men themselves have been paying their own way on these occasions. If we are to have additional retreats, it seems reasonable that the Association should stand a share of the expense involved.

#### FRIENDLY RELATIONS

The work among the foreign students this year has been of a very high quality, due largely to the interest and initiative of the assembly chairman, Brandon Rightmire, and the wise direction of Mr. Willits. A reception for foreign students was held at Pomerene Hall in the fall. On this occasion 60 of them were present. Perhaps the most unique affair ever held for these foreign friends of ours was the reception given them by the Governor of our state. For a number of years we have tried to have such an event for them, but it was not until January that it was made possible. The hundred and twenty-five guests enjoyed this friendly act of a friendly governor.

The Freshman Council gave a party to 35 foreign students at the Sigma Nu fraternity house recently. They enjoyed the occasion thoroughly.

The International Club has been meeting weekly, and with the help of the Association is becoming an influential organization among the foreign students.

We have a golden opportunity to build a fountain of good will in connection with the manner in which we treat these new friends. Invitations from faculty members to their homes would be one of the finest and most needed gestures. We have been able to do a great deal of this, but much more should be done.

#### SOCIAL

The biggest social event of the Association's year was the Annual Freshman Mixer held at Pomerene Hall the Saturday night of Freshman Week. Two thousand students attended this party. No charge is made the students for this Mixer, the expense being borne jointly by the Y.M.C.A. and the Y.W.C.A. Because the crowd was so large last year, the Ohio Union is cooperating this fall by giving an open-house party.

Once each Quarter the Cabinets of the Associations held joint parties. These have been extremely worth while in bringing about a more cooperative feeling between the two organizations. They have also afforded a splendid opportunity for the exchange of ideas.

The sophomores gave their annual Ice Breaker early in the fall. Nearly 800 students enjoyed this event. A profit of \$100 to each Association Council was realized from the party. The Sophomore Y.M.C.A. Council's money has been used to finance their program throughout the year, and what is left will help students go to Geneva.

The freshmen sponsored the Freshman Stag, the Freshman Football Dance, their own Key Award Banquet, and their own Farewell Picnic. At the Stag there were 350, and at the Football Dance 160. Further remarks about



our social program will be made under the head "Campus Fellowship Committee."

#### PUBLICITY

This committee has been responsible for most of the publicity incident to the various phases of our work.

#### SOCIAL SERVICE

The outstanding event of this committee's program was the Christmas service held at Pomerene Hall. Dr. M. H. Lichliter of the First Congregational Church gave a short address, the University Glee Club sang, and the fraternities and sororities and other organizations gave baskets and money. Twenty-four sororities, twenty-six fraternities, and the two Associations contributed. Eight groups gave parties for needy boys and presented them with useful gifts ranging from gloves to sheep-skin coats. Thirteen others gave baskets, while still others gave cash amounting to \$41.50. We count this one of our most worth-while endeavors.

The Freshman Council has been responsible for the leadership of five clubs at the Gladden Community House. The boys and the students have shared alike in the benefits of this service. Altruism, sympathy, and a co-operative attitude are being imbued through this enterprise.

#### SPEAKERS

Most of this work will be discussed under University Religious Council. Suffice it to say that the only expense involved this year on speakers was our dues of \$20 to the University Religious Council and \$25 to Dr. W. A. Shimer, as a reward for his valuable services. Next year, however, we shall have to spend approximately \$300, as the Council is planning a much more ambitious speakers' program in accordance with the urgent request of the Y.M.C.A. for the past three years.

The Cabinet and the Councils have had speakers at most of the meetings who discussed subjects of vital interest to thinking students.

The two Associations have also promoted a series of eighteen Sunday morning meetings in the interest of those students who have not been going to church. The topics have dealt with religious questions and, under the able leadership of Dr. W. A. Shimer of the Philosophy Department, a great many students were helped to a marked degree.

#### JUVENILE COURT

The efforts of the Juvenile Court Committee have been directed toward the growth of some thirty-five wayward boys, most of whom have appeared before the court for the first time. These lads were taken by their Big Brothers to football games, intramural contests, and other events in an effort to win them to the proper way of living. This is perhaps one of our most difficult tasks—largely because of the inaccessibility of the boys' homes and parents to the students trying to work with them. Toys and dolls for forty underprivileged boys and girls of one of the grammar schools were also provided by the committee.

#### FIRESIDE SESSIONS

Under the leadership of the student who is now the new President of the Association, the Fireside Sessions enjoyed another successful year. Last fall a

new series of sessions for the fraternity pledges was instituted. Questions concerning fraternity life and ideals dominated the series. Twenty-nine groups participated in the discussions, as did thirty-one leaders. With such a good start our efforts next year should prove even more effective.

The winter sessions were equally successful. Thirty-one groups engaged in this series. Forty-seven faculty members served as leaders. In a number of cases it was impossible to provide leaders for as many groups as desired to participate. By planning our program much farther in advance, we hope next year to eliminate this difficulty, and to add many more fraternities and a number of independent groups to our program.

The Faculty Lenten Services were also new this year. Five meetings were held in the Faculty Club under the leadership of prominent Columbus pastors. The attendance varied from 7 to 125, Dr. Lichliter drawing the largest attendance.

#### CAMPUS FELLOWSHIP

While this committee has not had the amount of leadership that its task has demanded, a very definite contribution to the campus has been made through its efforts. Its major project was an attempt to organize the unaffiliated men into various small groups that they might participate more completely in campus life, socially, athletically, and religiously. Since approximately 60 per cent of our men are unorganized, it is not difficult to imagine the size of this committee's undertaking. Some progress was made, mostly of an oral nature, yet arousing some interest among a small group of unaffiliated men. At least the ground is broken, and it will be easier to make headway next year. In our estimation there is no larger or more important task confronting the Association.

At the beginning of the Spring Quarter the Saturday night parties for the unaffiliated men and women were transferred from Pomerene to the Y.M.C.A. and the Y.W.C.A. completely. Whereas all year no charge had been made to students, the Associations assessed each man twenty-five cents, and supplied an orchestra. This change was made at the request of the students attending the dances. There is some agitation now to increase the charge to fifty cents that still better music may be provided. We have found that the men, especially, respect the parties more when they have to pay something for them.

#### EXTENSION

Due to several changes in the chairmanship of this committee, it was not a real success this year. Only two engagements were made. Next year's success is assured, however, since we have one of our best students at the head of the committee.

#### EMPLOYMENT

Employment has been scarce again this year although there was an increasing number of applicants. The general economic situation I believe to be responsible for this. A total of 1,324 men applied for jobs during the year, almost half of them being freshmen. Of these, 667 received work of some kind, half of whom were Freshmen. The total value of the 1,703 positions given out was \$53,432.

An investigation was made as to the relationship between excessive amount of work and scholarship. Twenty-five men were chosen because of the large amount of work they had done during the year. Nine of these men were



from the Commerce College, six from Engineering, one from the Graduate School, one from Pharmacy, three from Agriculture, two from Arts, two from Education, and one from Journalism. Six men had an average of 3.0 or better. Only two had an average of less than 1.8, the minimum for graduation. The average of the men in Commerce was 2.2; Engineering, 2.4; graduate school, 3.0; Pharmacy, 2.6; Agriculture, 2.8; Arts, 2.1; Education, 2.1; Journalism, 1.5. The deduction might be made that working has very little to do with scholarship. If anything, it is conducive to higher scholarship.

The Assistant Employment Secretary spent most of his afternoons interviewing possible employers. This brought in a great amount of work, especially the first part of the year. Contacts he has made throughout the year have been very beneficial.

#### OTHER ACTIVITIES OF THE COUNCILS

The largest project of the Freshman Council has been that of stimulating interest in a new auditorium for the campus. The idea for this program originated in the Council, but the Student Senate was asked to assume the official responsibility for the petition for the auditorium. The Senate then asked the Council to circulate the petition. The interest in securing a new auditorium is attested by 6,000 signatures. No one will deny the existence of this pressing need.

The Visitation Committee of the Freshman Council has visited regularly the freshmen confined to the University Hospital. A similar committee has been provided on next year's Upperclass Cabinet. There is a needed service to be rendered here.

One of the most interesting developments of the year has been the attitude towards the colored students. Two negro students have been included in the Sophomore Council, and one has been added to the Cabinet to take the chairmanship of a new committee. Obviously this is the Christian attitude, but the Christian attitude is not always the easiest.

Both Councils have been very active in the stimulation of interest in traditions. The freshmen were responsible for the success of the cap-burning ceremonies where 800 students gathered, 500 more than in former years. The sophomores organized a cheering section for the basketball games, were instrumental in the sun dial's being replaced, and inspired the interclass tug-of-war.

The secretaries and the students of the Y are very much interested in the traditions of our campus. There is a definite need for a reawakening of student spirit if college days are to be retained as fond memories by alumni, who then because of these memories remember their school with their material wealth.

#### COOPERATION WITH UNIVERSITY RELIGIOUS COUNCILS

The Association is a member of the University Religious Council, an organization made up of churches, the Associations, and certain interested faculty members. Cooperating with them we have brought to the campus Herbert Gray, an outstanding English student speaker; John Timothy Stone, of Chicago; Daniel Polling, of New York; Paul Jones, of Cincinnati; and Mr. Jacob De Hass, of New York. Next year we shall have a student convocation once a month on Sunday afternoon, bringing an outstanding religious leader of the country to the campus for the occasion.

## COOPERATION WITH THE STUDENT SENATE

Upon the suggestion of the secretary of the Y.M.C.A., the Senate appointed a committee to investigate the whole question of student spirit on our campus. The secretary has served as a member of this committee and counts this service as one of his worth-while contributions of the year. The secretary has also served as a member of the Senate Movie Committee, and as chairman of the Lecture Course Committee.

## COOPERATION WITH THE Y.W.C.A.

The relationships between the Y.M. and the Y.W. have never been better. Too much praise cannot be heaped upon the new Y.W. secretary, Miss Naomi Baker, for this very healthy situation. She has been enthusiastic and efficient, and we have counted it a privilege to work with her. Our joint efforts have been in part as follows: finance drive; cabinet parties; regular cabinet meetings; most social events, including the Freshman Mixer and Campus Fellowship parties; foreign work project, by which we hope to raise \$500 for Prague next fall; and the Christmas service.

## COOPERATION WITH FRESHMAN WEEK COUNCIL

The Freshman Secretary and the Executive Secretary have served on the committee to discuss Freshman Week. The Thursday night set-up under the leadership of the Student Senate is the suggestion of the Y.M.C.A.

## COOPERATION WITH ALUMNI OFFICE

The secretary has spoken at three alumni meetings this year—Detroit, Delaware, and Cadiz. In our finance trips we always endeavor to interest alumni in the University, not simply in the Y.M.C.A.

## COOPERATION WITH STATE AND NATIONAL OFFICES

We have enjoyed and profited greatly from our relationships with these two agencies during the past year. Helping to plan the State Training Conference, serving as a member of the Regional Council, and of the Geneva Committee have been pleasures of the most profitable kind.

Mr. Hall, our new president, has been elected to the presidency of the State Student Council of the Y.M.C.A. and has been serving as chairman of the State Geneva committee, both of which are evidences of the faith that students and secretaries have in his leadership and integrity.

## FINANCIAL SITUATION

Our financial situation is better than it has ever been. Two hundred fifty-five students participated in the student financial drive last fall which proved to be one of our most successful, the collection amounting to \$2,106. We feel that raising money is a definite part of our religious program. Developing in our students an unselfish attitude towards the giving of their money is a very important undertaking. We feel the same way about our alumni in regard to their giving to anything of value connected with the Institution.

Our method of raising money by the booklet system has been a marked success this year. More than \$2,000 in new subscriptions has been raised by mail. Before the end of June we shall have raised nearly \$5,000 among our alumni this year. This is an increase of \$4,500 in three years. We are hoping



before the year is over to raise some money for endowment. We shall spend a considerable part of the summer on this task.

The University increased its appropriation to the Y.M.C.A. by \$800, making an annual gift of \$2,000. We are very grateful for this appropriation and hope that we have fully justified it. Indeed we think we have. The employment service alone is worth that to the University. The freshman program is of infinite value to say nothing of the contribution the Y.M.C.A. is making in its general program among the students. Home support is the best leverage we have in raising money among our alumni. The fact that the Institution feels that the Association is worthy of its financial support is one of the very best reasons why alumni should support it.

The Community Fund failing again, the Association suffered a cut as it did last year. Our grant was \$4,800, but we were cut 9 per cent, making our actual appropriation \$4,368. Despite this fact we are balancing our budget and increasing it to \$16,000 for next year.

#### OFFICE MANAGEMENT

We have added to our equipment a new desk for student use, and for the use of our part-time employment secretary; an Ediphone, which facilitates the work and gives us more time for student conferences; an Addressograph; and another Visible Record Book. We have added to our constituency list of givers 3,000 names and have obtained the addresses of most of our former Cabinet men. Our records are in first-class condition. We are also working on a new accounting system that will keep all of our accounts in such a way that we shall know just what each activity is costing us.

#### CHANGES IN PERSONNEL

Mr. Thomas is leaving us for a full-time relationship with the Athletic Department. We regret his going as he has been a diligent and faithful worker. In parting company with him, we are glad that he is to be accessible to us. We wish him Godspeed. Mr. Jack Evans, who graduates this year, is succeeding Mr. Thomas.

Mr. Gunning, our part-time employment secretary, is graduating, and Mr. Lalendorf, a senior next year, is succeeding him.

#### NEW CONSTITUTION

This spring the Association adopted a new constitution, the main new provisions of which are election of the officers by the Cabinet, and the addition of two more students to the Advisory Board.

#### CONCLUDING REMARKS

This has been a very happy year for all of us secretaries. The students have cooperated in the finest kind of way. The same thing is true of the Advisory Board. Indeed on every hand we have found a willingness to help. With this sympathetic understanding of the position of the University Y.M.C.A., with this cooperative attitude on the part of those with whom we associate—the Board, the Students, the University Administration and Faculty, the Parents and Alumni—with their help we should go far next year in realizing the purpose of our Association. It will be less difficult to make Christ real to our campus and to ourselves.

## REPORT OF NEWS BUREAU

JAMES E. POLLARD

With the year just ended, the News Bureau in effect rounds out the first decade of its existence as part of the University organization. Beginnings in formal University publicity, according to the records, were made at least as far back as the administration of President Canfield, but not until the News Bureau was set up was official publicity attempted in its present form or on its present scale.

The News Bureau, it will be remembered, grew out of the stadium campaign held in the fall of 1920, since publicity was a necessary part of that undertaking. Following the campaign proper, the publicity office continued to function as a means of maintaining the interest aroused in the University and to keep in touch with its friends. Because the stadium enterprise was primarily athletic and because other funds were not available, the cost of maintaining the News Bureau, even though it served the entire University, devolved upon the athletic department.

It will be recalled that eventually the University assumed part of the cost and later took over the News Bureau. In the meantime the value of an official publicity service had become apparent. It is not too much to say that in building up the public confidence and the prestige which the University enjoys, the News Bureau has played a definite and an important part.

During the year just ended, the News Bureau has continued to make its chief contact with the public through the newspapers. There has been, however, one important change in the method of operation. Instead of mailing news releases at regular intervals direct to the daily press, such releases are now made only through the press associations.

This change in policy was dictated by changing conditions in the newspaper industry, and after nearly a year's trial it has proved entirely satisfactory. Special items of local interest are still mailed direct to the daily newspapers, and both general and special releases are prepared as the occasion warrants for the Ohio weekly press.

The variety and distribution of the "stories" prepared by and distributed through the Bureau during the year are suggested by the table on page 285.

The Bureau and its personnel have again functioned in other ways besides that of the preparation and release of information concerning University activities. The Director has served also as a member of the radio broadcasting committee, with the board of control of the Faculty Club, as a member of the advisory board of the University Y.M.C.A., and as a member of the special Summer Quarter publicity committee. In addition, he has helped during the year in the preparation of several special university publications and in connection with special University functions. As a member of the Summer Quarter publicity committee, he helped to prepare a series of special leaflets in connection with the usual Summer Quarter program.

Similarly, he was a member of the committee which helped to make arrangements for the Institute for Education by Radio, prepared a special



leaflet for the senior class memorial committee, and helped to prepare special publicity in connection with the annual education conference and the home-economics open house.

It is a pleasant duty once more to acknowledge the assistance and co-operation in the publicity program given almost without exception by members of the University staff. To name all of those who have given such help would be impossible; but among those to whom special acknowledgments are due are the President, the Business Manager and Secretary of the Board of Trustees, the Registrar, the University Examiner, the Deans, the Directors of Athletics, and the members of the Publicity Council.

## UNIVERSITY STORIES

Agriculture .....	32
Alumni .....	30
Arts and Sciences .....	1
Bureau of Business Research .....	75
C. and A. ....	1
Commerce Extension .....	8
Commencement .....	443
Debating .....	22
Education .....	7
Educational Conference .....	64
Engineering .....	25
Enrollment .....	1,397
Faculty .....	47
Fellowships, Scholarships, Honor Lists ..	115
Freshman Week .....	328
Graduate School .....	3
Journalism .....	16
Lectures .....	18
Law .....	1
Medicine .....	12
Military .....	259
Publications .....	3
Radio .....	122

Student Activities .....	22
Veterinary Medicine .....	12
Y.M.C.A. ....	3
Miscellaneous .....	107
Total .....	3,173

## ATHLETIC STORIES

Football .....	59
Track .....	71
Basketball .....	35
Baseball .....	9
Tennis .....	7
Cross-Country .....	6
Wrestling .....	4
Rifle .....	3
Fencing .....	2
Golf .....	2
Gym .....	1
Polo .....	8
Soccer .....	3
Stadium .....	3
Miscellaneous .....	71
Total .....	284

GRAND TOTAL, UNIVERSITY AND ATHLETIC STORIES.....3,457

A glance through a scrap book of representative newspaper clippings recently made up in the Bureau suggests that the University never has been as high in the public esteem as it now is. Various factors have contributed to this development, such as confidence in the University administration, the growing enrollment, the educational productivity of the University, the practical assistance rendered the state through research and other special functions, and the high standing enjoyed by the University among other colleges and universities. But the policy of the University in disseminating constructive information as to its activities—of taking the public into partnership—through regular and official channels has also played a part in this development. In a state university particularly, the item of good will is an invaluable asset, and this end the News Bureau hopes to serve in increasing measure.

# MILITARY SCIENCE

COLONEL G. L. TOWNSEND

I have the honor to present to the President and the Board of Trustees the annual report from the Department of Military Science and Tactics for the year ending June 30, 1930.

## ENROLLMENT

	Autumn Quarter	Winter Quarter	Spring Quarter
1928-29.....	3,596	3,294	2,875
1929-30.....	3,731	3,301	3,018

This shows an increase of 135 over last year's initial enrollment.

## GRADUATES

The following members completed the Advanced Courses in Military Science and were commissioned in the Officers' Reserve Corps in their respective branches:

	Autumn Quarter	Winter Quarter	Spring Quarter	Total
Inf. ....	2	1	39	42
F.A. ....	3	0	24	27
Sig. ....	0	0	25	25
Med. ....	0	0	25	25
Dent. ....	0	0	35	35
Vet. ....	0	0	13	13
Total.....	5	1	145	151

## PHYSICAL FACILITIES

The housing of the Military Department is still in an extremely bad condition, as reported in previous years. The need of an adequate Armory becomes more pressing every year.

## GENERAL SITUATION

1. There has been no noticeable activity during the year by agitators of the question of required military drill. Harmonious relations with all other departments of the University have continued as formerly.

2. The general progress and improvement in the work of the Military Department has been very satisfactory, and I believe that the officers who made the Annual Federal Inspection were favorably impressed by it. This condition is due in no small part to the cordial cooperation of the other departments of the University.



# SUMMARY OF THE FINANCIAL STATEMENT FOR THE YEAR ENDING JUNE 30, 1930

(A complete detailed Financial Report of the year ending June 30, 1930, is printed in separate form and may be had upon application.)

## THE OHIO STATE UNIVERSITY OFFICE OF THE BOARD OF TRUSTEES

COLUMBUS, OHIO, July 8, 1930

*Hon. Julius F. Stone*  
*Chairman of Board of Trustees*  
*The Ohio State University*

DEAR SIR:

The financial statement presented herein is that part of the Annual Report of the Board of Trustees to the Governor of Ohio, which shows the financial condition of The Ohio State University for the fiscal year ended June 30, 1930.

CARL E. STEEB,  
*Secretary*

### CONSOLIDATED STATEMENT

#### INCOME AND EXPENDITURES

Cash Balance July 1, 1929.....		\$ 694,178.87
Total Income for year.....	\$ 8,671,702.90	
Less funds paid to State Treasurer and not available for the University .....	6,216.97	
Total Available Income .....	\$ 8,665,485.93	
Total Expenditures for year .....	8,707,259.71	
Deficit for the year .....		41,773.78
Cash Balance June 30, 1930.....		\$ 652,405.09

#### ASSETS AND LIABILITIES

Current Assets .....	\$ 4,723,209.33	
Investment Assets .....	1,173,200.28	
Educational Plant:		
Value of lands, buildings, and equipment.....	20,042,822.20	
Contingent Liabilities .....		\$ 3,766,551.78
Endowment Fund Liabilities .....		1,150,299.20
Trust Fund Liabilities .....		22,901.08
Capital Account .....		20,999,539.75
	\$25,939,291.81	\$25,939,291.81

### INCOME

INCOME FROM STUDENTS:		
Tuition and incidental fees.....	760,266.50	
Special fees, degrees, etc.....	12,661.00	
Gymnasium locker rent.....	10,194.00	
		783,121.50
INCOME FROM ENDOWMENTS:		
For general purposes.....	13,045.88	
For designated purposes .....	9,266.31	
		22,312.19

## FEDERAL AID:

Land-grant Act of July 2, 1862.....	31,450.60
Land-grant—Virginia Military Lands.....	13,621.62
Additional Aid—Acts of Aug. 30, 1890, and March 4, 1907.....	50,000.00
Agricultural Extension Work—Acts of May 8, 1914, July 24, 1919, and January 17, 1928.....	280,110.86

375,183.08

## STATE AID:

Current Expenses .....	4,104,294.85
Capital Improvements .....	588,315.79
Agricultural Extension .....	363,345.77

5,055,956.41

## GIFTS FOR CURRENT EXPENSES:

For designated purposes.....	70,098.50
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70,098.50

## INCOME FROM OTHER SOURCES:

*Agricultural Extension*

Boys' and Girls' Club Work.....	6,716.22
County Agents' Funds from Counties.....	237,943.50
Farmers' Institutes .....	15,750.00
Rotary .....	3,877.34

263,787.06

*Departmental Earnings*

Applied Optics .....	5,023.70
Clinic .....	3,611.95
Dental Clinic .....	29,817.81
Dispensaries .....	1,865.49
Engineering Experiment Station.....	714.08
Farm Rotary .....	110,941.89
Lantern .....	14,595.88
Laundry .....	1,282.85
Ohio Biological Survey.....	373.60
Starling-Loving Hospital .....	124,251.38
University Publications .....	655.02
Veterinary Clinic .....	5,636.25

298,769.90

*For Designated Purposes*

Betterment of Buildings—Refund.....	6,473.57
Class of 1923—Interest on Gift.....	272.01
Class of 1925—Interest on Gift.....	277.39
Class of 1926—Interest on Gift.....	217.18
Class of 1927—Interest on Gift.....	112.57
Class of 1928—Interest on Gift.....	74.55
Class of 1929—Interest on Gift.....	9.90
Commutation of Uniforms.....	26,554.68
*Miscellaneous Sales .....	6,206.97
Return of Loans.....	110.67
State Board of Education (Smith-Hughes).....	39,539.34
Student Medical Service.....	24,079.00
*Virginia Military Lands.....	10.00

103,937.83

## DORMITORIES AND DINING HALLS:

Pomerene Cafeteria .....	47,593.77
Residence Halls for Women.....	169,848.87
Stone Laboratory Dining Hall.....	3,585.65

221,028.29



## FINANCIAL REPORT

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## COMMERCIAL ACCOUNTS:

Photograph Department .....	13,057.50
Telephone Account .....	23,018.84
University Bookstore .....	103,210.73
University Print Shop.....	149,001.78
Warehouse .....	464,166.12

752,454.97

## SUBSIDIARY COMMERCIAL ACCOUNTS:

Dairy Department—Official Testing.....	16,612.33	
Journal of Higher Education.....	4,678.79	
Ohio College Association.....	11,780.29	33,071.41

ATHLETIC DEPARTMENT.....	691,981.76	691,981.76
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Total Income .....	8,671,702.90
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Less funds (*) paid to State Treasurer and not available for the University .....	6,216.97
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Total Available Income.....	8,665,485.93
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## CLASSIFIED EXPENDITURES

## EXPENSES:

Salaries .....	4,500,886.14
Boys' and Girls' Club Work.....	6,619.26
Coal and gas .....	81,943.68
Employees and extra labor .....	234,009.77
Feed for livestock .....	25,256.63
Field work, Agricultural Extension .....	141,663.73
Food supplies .....	86,035.60
Freight and cartage .....	13,459.39
Incidentals .....	74,941.56
Laboratory and educational supplies .....	155,575.11
Materials and general supplies .....	254,783.51
Printing .....	81,394.92
Refunds, Military Uniforms .....	25,986.08
Repairs to equipment .....	34,783.67
Scholarships and student aid.....	17,688.02
State Teachers' Retirement System.....	66,701.62
Stationery and office supplies.....	101,437.09
Telephone and telegraph.....	25,797.10
Travel .....	32,699.66
Water .....	28,091.60

Total Expenses .....	5,989,754.14
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## EQUIPMENT:

Apparatus .....	107,597.19
Books .....	73,522.99
Collections .....	210.18
Furniture and fixtures.....	151,285.92
Livestock .....	11,347.70
Machinery, tools, and appliances.....	89,477.99

Total Equipment.....	438,441.97
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LANDS .....	41,141.32
NEW BUILDINGS.....	251,287.53
ADDITIONS TO BUILDINGS.....	225,366.90
IMPROVEMENTS .....	81,520.04

Total .....	599,315.79
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## DORMITORIES AND DINING HALLS:

Pomerene Cafeteria.....	45,370.49
Residence Halls for Women.....	157,938.18
Stone Laboratory Dining Hall.....	3,393.38

Total Dormitories and Dining Halls.....	206,702.05
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## COMMERCIAL:

Photograph Department.....	17,935.35
Telephone Account.....	23,215.39
University Bookstore.....	103,494.49
University Print Shop.....	164,258.11
Warehouse .....	455,813.35

Total Commercial.....	764,716.69
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## SUBSIDIARY COMMERCIAL:

Dairy Department—Official Testing.....	14,806.33
Journal of Higher Education.....	4,664.56
Ohio College Association.....	11,609.52

Total Subsidiary Commercial.....	31,080.41
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ATHLETIC DEPARTMENT.....	682,248.66
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Total Expenditures.....	8,707,259.71
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## BALANCE SHEET, JUNE 30, 1930

## ASSETS

## CURRENT ASSETS:

Cash in bank and on hand for current expense.....	\$ 652,405.09
Deposits .....	454.00
Auditor of State, Special Appropriations.....	3,766,551.78
Inventories .....	303,798.46

## INVESTMENT ASSETS:

State Treasurer (irreducible debt of the State).....	1,133,099.20
Ohio State University Treasurer.....	40,101.08

## EDUCATIONAL PLANT:

Lands, Buildings, and Equipment.....	20,042,882.20
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Total Assets.....\$25,939,291.81

## LIABILITIES

## CONTINGENT LIABILITIES:

Special State Appropriations.....	\$ 3,766,551.78
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## ENDOWMENT FUNDS:

Funds for General Purposes, Invested.....	968,968.38
Funds for Special Purposes, Invested.....	181,330.82

TRUST FUNDS.....	22,901.08
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CAPITAL ACCOUNT.....	20,999,539.75
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Total Liabilities.....\$25,939,291.81

## GIFTS FOR GENERAL AND DESIGNATED PURPOSES

The following items are turned into the State Treasury to the credit of Rotary Funds for use by the University:

<i>From Whom</i>	<i>Purpose</i>	<i>Amount</i>
Akron Alumni Association.....	Student Loan Fund.....	\$ 50.00
American Institute of Steel Construction.....	Fellowship in College of Engineering.....	750.00
Bailey Meter Company.....	Fellowship in College of Engineering.....	1,450.00
Baker Chemical Company.....	Fellowship in College of Engineering.....	1,000.00
The Barrett Company.....	Fellowship in College of Engineering.....	1,500.00
Karl Bickel.....	Purchase of Books.....	100.00
Board of Christian Education.....	Fellowship in College of Education.....	1,350.00
Broadcasting Station WTAM.....	Broadcasting Michigan-Ohio Football Game.....	708.25
Central Alloy Steel Corporation.....	Research work in College of Engineering..	225.00
Chemistry Students.....	Bronze Tablets in Chemistry Building.....	276.04
Class of 1929.....	Rehabilitation of Mirror Lake.....	532.48
Columbus Scholarship Society.....	Student Loan Fund.....	900.00
Common Brick Manufacturing Association.....	Research work in College of Engineering..	350.00
Detroit Alumnae Association.....	Student Loan Fund.....	150.00
E. I. du Pont de Nemours Company.....	Fellowship in College of Engineering.....	750.00
Educational Conference.....	Program of the Educational Conference....	200.00
Graduate School.....	Publication of Doctors' Dissertations.....	7,665.00
Guggenheim Fund.....	Research work in Aeronautics.....	3,750.00
Harbison Walker Company.....	Research work in College of Engineering..	100.00
Home Economics Nursery.....	Purchase of Equipment.....	2,275.00
F. H. Johnson.....	Research work in College of Engineering..	200.00
National Electric Light Association.....	Rural Electrification Project.....	3,900.00
National Kraut Packers' Association.....	Fellowship in College of Agriculture.....	1,000.00

New York Alumnae Association.....	Student Loan Fund.....	151.00
New York Potash Export.....	Fellowship in College of Agriculture.....	1,000.00
Ohio Ceramic Industries Association.....	Research work in Ceramics.....	83.33
Ohio Collieries Association.....	Ohio Coal Investigation.....	2,000.00
Ohio Salt Company.....	Fellowship in College of Engineering.....	300.00
Ohio State Florists' Association.....	Fellowship in Floriculture.....	600.00
Paving Brick Manufacturers Association..	Kiln Firing Research.....	1,600.00
Payne Experimental Fund.....	Research work in College of Education....	8,733.51
Presser Foundation.....	Scholarship in College of Education.....	250.00
Solvay Sales Corporation.....	Calcium Chloride Fellowship.....	1,500.00
Springfield Alumnae Association.....	Student Loan Fund.....	50.00
State Department of Education.....	Expenses in Parental Education.....	11,500.00
Structural Clay Tile Association.....	Research work in College of Engineering...	11,673.89
Synthetic Nitrogen Products Corporation..	Research work in College of Engineering...	800.00
Tau Beta Pi.....	Fellowship in College of Engineering.....	600.00
University Womens Club of Pittsburgh...	Student Loan Fund.....	75.00

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 \$70,098.50



## APPENDIX I

### BOARD OF TRUSTEES—1929-30

	<i>Date Original Appointment</i>	<i>Term Expires</i>
*JULIUS F. STONE, Columbus.....	March 17, 1925	May 13, 1930
LAWRENCE E. LAYBOURNE, Springfield.....	May 14, 1921	May 13, 1931
HARRY A. CATON, Coshocton.....	May 14, 1925	May 13, 1932
MRS. ALMA W. PATERSON, Columbus.....	March 27, 1924	May 13, 1933
HERBERT S. ATKINSON, Columbus.....	March 17, 1925	May 13, 1934
EGBERT S. MACK, Sandusky.....	December 12, 1922	May 13, 1935
JOHN KAISER, Marietta.....	February 25, 1915	May 13, 1936

\* Julius F. Stone served also as a member from May 13, 1909 to March 21, 1917.

### OFFICERS OF THE BOARD

JULIUS F. STONE.....	<i>Chairman</i>
MRS. ALMA W. PATERSON.....	<i>Vice-Chairman</i>
CHARLES F. KETTERING.....	<i>Treasurer</i>
CARL E. STEEB.....	<i>Secretary and Business Manager</i>

## APPENDIX II

### ADMINISTRATIVE OFFICERS

*For the year ending June 30, 1930*

GEORGE W. RIGHTMIRE.....	<i>President</i>
Office—Administration Building, UN-3148; Campus 312.	
Residence—Ohio State University Campus, UN-3148; Campus 274.	
WILLIAM OXLEY THOMPSON.....	<i>President Emeritus</i>
Residence—55 Woodland Avenue, FR-4000.	
CARL E. STEEB.....	<i>Secretary of the Board of Trustees and Business Manager</i>
Office—Administration Building, UN-3148; Campus 332.	
Residence—198 West Eleventh Avenue, UN-4732.	
GEORGE W. ECKELBERRY.....	<i>Assistant to the President</i>
Office—Administration Building, UN-3148; Campus 380.	
Residence—2023 Collingswood Road, UN-5148-M.	
EDITH D. COCKINS.....	
<i>Registrar, University Editor, Secretary of the University Faculty and Alumni Recorder</i>	
Office—Administration Building, UN-3148; Campus 314.	
Residence—1580 Guilford Road, UN-9635.	
BLAND L. STRADLEY.....	<i>University Examiner</i>
Office—Administration Building, UN-3148; Campus 412.	
Residence—Canal Winchester, Canal Winchester Ex. 71.	
KATHERINE A. VOGEL.....	<i>Executive Clerk</i>
Office—Administration Building, UN-3148; Campus 312.	
Residence—1040 Elmwood Avenue, UN-8784-J.	
CHARLES A. KUNTZ.....	<i>Comptroller</i>
Office—Administration Building, UN-3148; Campus 332.	
Residence—265 Tulane Road, LA-3606.	
FLORIS D. HANE.....	<i>Cashier</i>
Office—Administration Building, UN-3148; Campus 371.	
Residence—373 Thirteenth Avenue, WA-1054.	

- JOSEPH A. PARK.....*Dean of Men*  
Office—Administration Building, UN-3148 ; Campus 283.  
Residence—1474 Doone Road, UN-1559-J.
- ESTHER ALLEN GAW.....*Dean of Women*  
Office—Pomerene Hall, UN-3148 ; Campus 480.  
Residence—60 Jefferson Avenue, MA-2692.
- EMMA E. PROUT.....*House Superintendent, Residence Halls*  
Office—Oxley Hall, UN-3148 ; Campus 346.  
Residence—Mack Hall, UN-3148 ; Campus 264.
- EDWARD S. DRAKE.....*Manager of Ohio Union*  
Office and Residence—Ohio Union, UN-3148 ; Campus 273.
- JAMES E. POLLARD.....*Director of News Bureau*  
Office—Administration Building, UN-3148 ; Campus 491.  
Residence—1143 Grandview Avenue, RA-1557-J.
- WILLIAM C. MCCracken.....*Chief Engineer and Superintendent of Buildings and Grounds*  
Office—Service Building, UN-3148 ; Campus 428.  
Residence—1778 North High Street, UN-2492.
- RAY M. ROYER.....*Purchasing Agent*  
Office—Administration Building, UN-3148 ; Campus 371, 374.  
Residence—1828 Arlington Avenue ; UN-0918-W.
- FRED E. JONES.....*Director of Stores and Receiving Department*  
Office—Service Building, UN-3148 ; Campus 354.  
Residence—255 Oakland Park Avenue, LA-3461.
- CHESTER W. MCCLINTOCK.....*Storekeeper*  
Office—Chemistry Building, UN-3148 ; Campus 228.  
Residence—232 Glenmont Avenue, LA-4070.
- H. DWIGHT SMITH.....*University Architect*  
Office—100 Brown Hall, UN-3148 ; Campus 361.  
Residence—1950 Arlington Avenue, UN-9695-J.
- WILBUR E. PEARCE.....*Director of the University Press*  
Office—Journalism Building, UN-3148 ; Campus 275.  
Residence—190 Fourteenth Avenue, UN-6176-W.
- GEORGE H. SIEBERT.....*Manager of the University Bookstore*  
Office—Derby Hall, UN-3148 ; Campus 511.  
Residence—2239 Fairfax Road, UN-4645-J.

## APPENDIX III

## CHANGES IN FACULTY

## NEW APPOINTMENTS

1929-30

Harold W. Batchelor.....	Assistant Professor	Soils
Lester K. Born.....	Assistant Professor	Classical Languages
Richard Bradfield .....	Professor	Soils
Alvin Broerman .....	Associate Professor	Veterinary Medicine
Howard D. Brown.....	Professor	Horticulture and Forestry
Lewis W. Burgwald.....	Associate Professor	Dairy Technology
Lewis C. Chadwick.....	Assistant Professor	Horticulture and Forestry
Guy Conrey .....	Associate Professor	Soils
William H. Cowley.....	Assistant Professor	Bureau of Educ. Research
Edgar Dale .....	Assistant Professor	Bureau of Educ. Research
William E. Dickerson.....	Assistant Professor	Commerce Extension
Floyd C. Dockeray.....	Professor	Psychology
Erwin E. Dreese.....	Professor	Electrical Engineering
Bruce H. Edgington.....	Associate Professor	Veterinary Medicine
Linden Edwards .....	Assistant Professor	Anatomy



Andrew J. Fairbanks....	Associate Professor .....	Mechanical Engineering
L. W. Feezer.....	Professor .....	Law
L. R. Forney.....	Assistant Professor .....	Military Science
Joseph H. Gourley .....	Professor .....	Horticulture and Forestry
Willard F. Guard.....	Professor .....	Veterinary Medicine
Francis Head.....	Assistant Professor .....	Fine Arts
Herrick L. Johnston....	Assistant Professor .....	Chemistry
Milo Kimball.....	Assistant Professor .....	Commerce Extension
Leila Kinney.....	Acting Assistant Professor.....	Sociology
Alfred Landé.....	Professor .....	Physics
George E. Large.....	Assistant Professor .....	Civil Engineering
Alex Laurie.....	Professor .....	Horticulture and Forestry
Loren E. MacKinney....	Acting Associate Professor.....	History
Robert E. Monroe.....	Professor .....	Romance Languages
William C. McQuiston....	Assistant Professor .....	Zoology and Entomology
Fred J. Salter.....	Assistant Professor .....	Soils
Robert M. Salter.....	Professor .....	Soils
Guy H. Smith.....	Assistant Professor .....	Geography
Howard Dwight Smith....	Professor .....	Architecture
Raymond C. Smith.....	Assistant Professor .....	Rural Economics
Charles C. Stillman....	Professor .....	Sociology
James B. Tharp.....	Assistant Professor .....	Principles of Education
Cloea Thomas.....	Assistant Professor .....	Music
L. H. Thomas.....	Assistant Professor .....	Physics
Ralph W. Tyler.....	Associate Professor .....	Bureau of Educ. Research
Eugene Weigel.....	Professor .....	Music
J. M. Wayne.....	Assistant Professor .....	Military Science
J. Luidens Wierda.....	Assistant Professor .....	Anatomy
R. W. Winfield.....	Assistant Professor .....	Military Science

## PROMOTIONS IN RANK

1929-30

Ralph Alsbaugh .....	Instructor to Assistant Professor.....	Business Organization
Earl Baxter .....	Instructor to Assistant Professor.....	Medicine
Hugh G. Beatty.....	Associate Professor to Professor.....	Oto-Laryngology
Theodore N. Beckman....	Assistant Professor to Associate Professor....	Business Organization
Faun Cameron .....	Instructor to Assistant Professor.....	Music
Charles D. Cooper.....	Instructor to Assistant Professor.....	Engineering Drawing
Mervin A. Durea.....	Instructor to Assistant Professor.....	Psychology
Samuel D. Edelman.....	Instructor to Assistant Professor.....	Medicine
William L. Everitt.....	Assistant Professor to Associate Professor....	Electrical Engineering
William Frierson .....	Instructor to Assistant Professor.....	English
Albert D. Frost.....	Assistant Professor to Associate Professor....	Ophthalmology
James F. Fullington....	Instructor to Assistant Professor.....	Principles of Education
William C. Graham.....	Assistant Professor to Professor.....	Dentistry
E. Allen Helms.....	Instructor to Assistant Professor.....	Political Science
Walter R. Hobbs.....	Assistant Professor to Associate Professor....	Veterinary Medicine
Marion Hollingsworth ..	Assistant Professor to Curator.....	Chemistry
Lawrence D. Jones.....	Instructor to Assistant Professor.....	Engineering Drawing
Louis Lutzenberger .....	Instructor to Assistant Professor.....	Engineering Drawing
Cyrus C. MacDuffee....	Assistant Professor to Associate Professor....	Mathematics
Herman Miller .....	Instructor to Assistant Professor.....	English
David F. Miller.....	Instructor to Assistant Professor.....	Zoology
Elsie Steiger Minton....	Instructor to Assistant Professor.....	Home Economics
George I. Nelson.....	Instructor to Assistant Professor.....	Medicine
Philip J. Reel.....	Instructor to Assistant Professor.....	Surgery
Hugh Setterfield.....	Instructor to Assistant Professor.....	Anatomy
William A. Shimer.....	Instructor to Assistant Professor.....	Philosophy
Paris Stockdale.....	Instructor to Assistant Professor.....	Geology
William N. Taylor.....	Instructor to Assistant Professor.....	Surgery
Tracy E. Thompson....	Lecturer to Assistant Professor.....	Business Organization
Willard R. Valentine....	Instructor to Assistant Professor.....	Psychology
Francis Weisenburger....	Instructor to Assistant Professor.....	History
J. Harold Wilson.....	Instructor to Assistant Professor.....	English

## APPENDIX IV

Which shows the number of professors, officers, teachers, and other employees, and the position and compensation of each, as required by Section 7947 of an Act passed May 29, 1915.

<i>Name of Employee</i>	<i>Position</i>	<i>Salary</i>
George W. Rightmire.....	President .....	\$15,000.00
W. O. Thompson.....	President Emeritus .....	6,500.00

## COLLEGE OF AGRICULTURE

Alfred Vivian .....	Dean .....	7,500.00
H. W. Nisonger.....	Junior Dean .....	5,000.00
True C. Watson.....	Secretary of the College.....	3,600.00
Ruth Eckert .....	Stenographer .....	1,260.00
Ruth G. Doughton.....	Stenographer .....	1,260.00
Edith M. Switzer.....	Office Assistant .....	400.00
Elizabeth Nincehelter .....	Stenographer .....	902.50
Frances Behymer .....	Stenographer .....	1,080.00
Grace Trunick .....	Stenographer .....	1,080.00
Crystal Barker.....	Stenographer .....	1,080.00
Ruth M. Landen.....	Stenographer .....	1,080.00
Ruby Pearl Evans.....	Stenographer .....	1,020.00
Rose McCabe .....	Stenographer .....	1,020.00
Elizabeth Grube .....	Stenographer .....	510.00
Irona A. Smith.....	Stenographer .....	1,020.00
Cecelia Ryan .....	Stenographer .....	180.00
Flo Bailey .....	Stenographer .....	540.00
Irene Rodey .....	Stenographer .....	540.00
Hazel Monett.....	Stenographer .....	400.00
Phyllis Burkham .....	Stenographer .....	85.00
Wilbur E. Baker.....	Supervisor of Rotary Accounts.....	1,800.00
Bernice C. Marx.....	Stenographer .....	1,020.00
Myrtle Albaugh .....	Stenographer .....	100.00
Melvin O. Kennedy.....	Assistant .....	300.00
Veronica Ryan .....	Stenographer .....	320.00
Meriel Joy Latham.....	Office Assistant .....	400.00
Edna M. Yocke .....	Stenographer .....	397.68
Hester Groezinger .....	Stenographer .....	400.00

## AGRICULTURAL CHEMISTRY

John F. Lyman.....	Professor .....	5,000.00
R. C. Burrell.....	Assistant Professor .....	3,525.00
E. F. Almy.....	Assistant Professor .....	3,400.00
Mrs. R. W. Powell.....	Assistant .....	600.00
E. D. Walter.....	Assistant .....	500.00
Maurice Rusoff .....	Student Assistant .....	150.00
James C. Sanford.....	Graduate Assistant .....	500.00
Howard E. Gayley.....	Assistant .....	1,000.00

## AGRICULTURAL EDUCATION

W. F. Stewart.....	Professor (12 months).....	3,000.00
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## AGRICULTURAL ENGINEERING

G. W. McCuen.....	Professor .....	3,800.00
C. O. Reed.....	Professor .....	3,575.00
Virgil Overholt .....	Professor .....	1,000.00
Benton M. Stahl.....	Instructor .....	2,250.00
Norman W. Wilson.....	Assistant .....	750.00
Walter Umbstaetter .....	Mechanic .....	1,700.00
John T. Miller.....	Mechanic .....	1,400.00



## ANIMAL HUSBANDRY

Carl W. Gay.....	Professor .....	6,500.00
D. J. Kays.....	Professor .....	5,000.00
J. S. Coffey.....	Professor .....	4,500.00
S. M. Salisbury.....	Professor .....	4,350.00
C. S. Plumb.....	Professor .....	4,000.00
F. H. Helmrich.....	Assistant Professor .....	3,200.00
Jonathan T. Frost.....	Graduate Assistant .....	500.00
Edwin E. Heizer.....	Instructor .....	1,500.00
Thomas S. Sutton.....	Instructor (12 months).....	750.00

## ANIMAL HUSBANDRY—EMPLOYEES

David M. Fyffe.....	Superintendent of Live Stock.....	1,800.00
Robert Watson.....	Groom .....	1,800.00
John C. Thompson.....	Dairy Cattle Herdsman.....	1,800.00
William Franklin.....	Shepherd .....	1,720.00
W. C. Koger.....	Swine Herdsman .....	1,690.00
George Robb.....	Laborer .....	1,440.00
Ray Garrett.....	Assistant Herdsman .....	1,360.00
Cecil Bayes.....	Herdsman .....	1,260.00
Jonathan Alban.....	Pavilion Groom .....	600.00
L. B. Bowers.....	Assistant Dairy Herdsman.....	1,200.00
B. L. Cunningham.....	Laborer .....	1,200.00
Andrew Armstrong.....	Assistant Shepherd .....	1,080.00
Alvin McAdow.....	Laborer .....	1,080.00
Albert Bell.....	Laborer .....	1,080.00
Frank Peairs.....	Laborer .....	810.00
James Grandstaff.....	Laborer (half-time) .....	280.00
Howard Constable.....	Laborer (half-time) .....	385.00
Robert McDonald.....	Pavilion Groom .....	360.00
C. C. Crist.....	Laborer (part-time) .....	60.00
Bono Smit.....	Laborer .....	270.00
Rae Baker.....	Laborer .....	180.00

## BOTANY

E. N. Transeau.....	Professor and Director of Botanical Garden.....	6,000.00
J. H. Schaffner.....	Research Professor .....	4,500.00
H. C. Sampson.....	Professor .....	5,500.00
W. G. Stover.....	Professor .....	4,000.00
A. E. Waller.....	Associate Professor and Curator of Botanical Garden.....	4,000.00
L. H. Tiffany.....	Associate Professor .....	4,000.00
Bernard S. Meyer.....	Assistant Professor .....	2,925.00
Lois Lampe.....	Instructor .....	2,675.00
Glenn W. Blaydes.....	Instructor .....	2,200.00
Wendell H. Camp.....	Instructor .....	2,150.00
Sherman Humphrey.....	Instructor .....	2,075.00
Helen Brown.....	Instructor .....	1,500.00
C. W. Horton.....	Instructor .....	1,800.00
Pearle E. Williams.....	Instructor .....	1,775.00
Robert Findlay.....	Assistant .....	1,800.00
Hiram F. Thut.....	Assistant .....	1,800.00
Robert B. Gordon.....	Assistant .....	1,800.00
Everitt Miller.....	Graduate Assistant .....	382.00
F. W. Van Ohlen.....	Graduate Assistant .....	500.00
Kenneth E. Wright.....	Graduate Assistant .....	500.00
Leland A. Robertson.....	Graduate Assistant .....	500.00
O. Neal Liming.....	Graduate Assistant .....	382.00
Arthur G. Chapman.....	Graduate Assistant .....	500.00
Paul J. Kramer.....	Graduate Assistant .....	500.00
Lawrence Hicks.....	Graduate Assistant .....	500.00
Harold B. Hill.....	Graduate Assistant .....	385.00
Ervin M. Herrick.....	Student Assistant .....	300.00

Hiram Thut .....	Assistant .....	450.00
Kenneth E. Wright .....	Graduate Assistant .....	165.00
Harold B. Hill .....	Graduate Assistant .....	165.00
Allen H. Bauer .....	Graduate Assistant .....	165.00
Liang Ching Li .....	Graduate Assistant .....	165.00
Mary Winifred O'Connor .....	Graduate Assistant .....	165.00

## DAIRY TECHNOLOGY

Robert B. Stoltz .....	Professor and Chairman of Department .....	5,000.00
Oscar Erf .....	Professor .....	4,500.00
Lewis H. Burgwald .....	Associate Professor .....	3,000.00
J. Hoffman Erb .....	Instructor .....	2,625.00
John O. Kimbrough .....	Laborer .....	1,080.00
Harry L. Webster .....	Graduate Assistant .....	500.00
Otto F. Hunziker .....	Professor—W. C. .....	100.00
Harold G. Alberty .....	Assistant—W. C. .....	200.00

## FARM CROPS

J. B. Park .....	Professor .....	2,550.00
C. J. Willard .....	Professor .....	3,253.33
H. L. Borst .....	Assistant Professor .....	1,575.00
Joseph B. McLaughlin .....	Assistant .....	300.00
E. W. Hardies .....	Graduate Assistant .....	500.00
Harold Black .....	Assistant .....	300.00
Lydia Smith .....	Assistant .....	160.00
Arthur Anderson .....	Assistant .....	200.00

## FARM MARKETING

L. G. Foster .....	Assistant Professor .....	4,700.00
Raymond C. Smith .....	Assistant Professor .....	1,200.54
C. R. Arnold .....	Assistant Professor .....	1,200.00
J. F. Dowler .....	Instructor .....	2,900.00
John H. Sitterley .....	Assistant .....	2,300.00
Paul G. Minneman .....	Assistant .....	183.00
Richard H. Baker .....	Assistant .....	450.00
Robert E. Knedler .....	Assistant .....	450.00
Whitney B. Stout .....	Assistant .....	400.00
Dorothy Fuller .....	Clerk .....	1,200.00
Helen Elliott .....	Clerk .....	977.50
Kathleen Cooney .....	Stenographer .....	1,020.00
Irene Rodey .....	Stenographer .....	540.00
Hubert Montagnac .....	Assistant .....	562.50
E. J. Hopkins .....	Assistant .....	1,650.00
James J. Anderson .....	Assistant .....	450.00

## FARM OPERATIONS

Thomas D. Phillips .....	Assistant Professor and Superintendent of Farm .....	3,600.00
John DeWitt .....	Mechanic .....	1,560.00
Lloyd Blackburn .....	Mechanic .....	1,400.00
Charles Pugh .....	Head Teamster .....	1,320.00
M. Peck .....	Teamster .....	1,200.00
Merle Day .....	Laborer .....	1,260.00
A. M. Farley .....	Laborer .....	1,200.00
John Long .....	Laborer .....	1,200.00
S. N. Bell .....	Laborer .....	1,200.00
H. L. Bosart .....	Laborer .....	1,200.00
Everett Clark .....	Laborer .....	1,200.00
J. R. Remy .....	Laborer .....	1,200.00
Charles Ferguson .....	Laborer .....	1,160.00
Louis Randall .....	Laborer .....	1,080.00



## FRANZ THEODORE STONE LAKE LABORATORY

Raymond C. Osburn.....	Director .....	750.00
F. H. Kreeker.....	Assistant Director .....	750.00
L. H. Tiffany.....	Professor .....	750.00
Clarence H. Kennedy.....	Professor .....	750.00
M. E. Stickney.....	Professor .....	500.00
S. R. Williams.....	Professor .....	500.00
Jessie B. Bush.....	Stenographer .....	150.00
John F. Harper.....	Assistant .....	150.00

## HOME ECONOMICS

Faith R. Lanman.....	Professor .....	3,900.00
Grace G. Walker.....	Professor .....	3,333.00
Hughina McKay.....	Professor .....	2,775.00
June F. Kennedy.....	Assistant Professor .....	3,000.00
Edith F. Deadman.....	Assistant Professor .....	700.00
Eve E. Turnbull.....	Assistant Professor .....	2,650.00
Alice Donnelly.....	Assistant Professor .....	1,983.33
Margaret W. C. Black.....	Instructor .....	650.00
Eunice Ryan.....	Instructor .....	2,491.67
Elsie S. Minton.....	Assistant Professor .....	2,700.00
Alma Heiner.....	Instructor .....	2,450.00
Medora Grandprey.....	Instructor .....	2,250.00
Elizabeth C. Cooley.....	Instructor .....	1,700.00
Mary Ann Brown.....	Instructor .....	900.00
Marian J. Evans.....	Assistant .....	233.33
Bertha Baker.....	Assistant .....	540.00
Glenna Schlitt Pryor.....	Assistant .....	675.00
Agnes Skinner.....	Assistant .....	500.00
Anne H. McGuire.....	Assistant .....	150.00
Mary Alice Hunter.....	Assistant .....	150.00
Pauline W. Snyder.....	Graduate Assistant .....	450.00
Helen Mettler.....	Student Assistant .....	45.00
Mildred Taylor.....	Student Assistant .....	135.00
Agnes Turner.....	Student Assistant .....	135.00
Ruth Beard.....	Student Assistant .....	135.00
Elizabeth Moore.....	Assistant .....	450.00
Medora Grandprey.....	Instructor .....	250.00
Margaret W. C. Black.....	Instructor .....	150.00
Edith F. Deadman.....	Assistant Professor .....	450.00
Gladys Robinette.....	Assistant .....	319.95
Margaret Walker Spiers.....	Assistant Professor .....	2,100.00
Daisy Davis.....	Instructor .....	2,025.00
Doris Ufer.....	Assistant .....	540.00
Florence Osborn.....	Assistant .....	1,166.67
Marian Griffith.....	Instructor .....	1,012.50
Eva Davis Riddle.....	Assistant (part-time) .....	450.00
Lillian Sparnon.....	Student Assistant .....	90.00

## HORTICULTURE AND FORESTRY

W. Paddock.....	Professor .....	4,800.00
L. M. Montgomery.....	Professor .....	3,700.00
Howard D. Brown.....	Professor .....	2,812.50
Alex Laurie.....	Professor .....	2,812.50
Joseph H. Gourley.....	Professor .....	3,500.00
N. W. Scherer.....	Assistant Professor .....	2,750.00
Lewis C. Chadwick.....	Assistant Professor .....	1,940.00
F. G. Charles.....	Assistant Professor .....	2,150.00
John Morrison.....	Assistant (12 months) .....	1,000.00
J. E. Schanck.....	Assistant (12 months) .....	1,400.00
Joseph Haigh.....	Laborer .....	1,320.00
James A. Moore.....	Laborer .....	1,000.00

William Patterson .....	Laborer .....	1,080.00
Harold C. Esper .....	Instructor .....	200.00
William P. Robinson .....	Assistant (12 months) .....	1,333.33
Paul Oates .....	Graduate Assistant .....	500.00
Milton W. Austin .....	Assistant .....	750.00
Bruce H. Head .....	Laborer .....	200.00

## OHIO BIOLOGICAL SURVEY

Herbert Osborn .....	Director .....	500.00
H. Ray Eggleston .....	Specialist .....	400.00
John Paul Visscher .....	Specialist .....	400.00
Arthur W. Lindsay .....	Specialist .....	400.00
Lee B. Walton .....	Specialist .....	400.00
Charles B. Mayer .....	Assistant .....	150.00
Elizabeth Davis .....	Office Assistant .....	480.00

## POULTRY HUSBANDRY

E. L. Dakan .....	Professor .....	5,500.00
Alden R. Winter .....	Assistant Professor .....	3,500.00
Arthur Bayes .....	Superintendent of Poultry Plant .....	2,300.00
C. E. Florea .....	Laborer .....	1,400.00
Clarence J. Schumacher .....	Laborer .....	1,200.00
Forrest Warne .....	Laborer .....	600.00
J. A. Cross .....	Laborer .....	300.00
Richard A. Gordon .....	Laborer .....	300.00
Alden R. Winter .....	Assistant Professor .....	800.00

## RURAL ECONOMICS

J. I. Falconer .....	Professor .....	2,750.00
C. E. Lively .....	Assistant Professor .....	2,850.00
C. G. McBride .....	Assistant Professor .....	2,850.00
F. L. Morison .....	Instructor .....	1,750.00
Nora M. Friel .....	Stenographer .....	595.00
Lillian Egbert .....	Stenographer .....	394.29

## SOILS

Robert M. Salter .....	Professor .....	3,500.00
Richard Bradfield .....	Professor .....	1,375.00
Guy W. Conrey .....	Associate Professor .....	1,600.00
George M. McClure .....	Assistant Professor .....	2,100.00
Frederick J. Salter .....	Assistant Professor .....	1,200.00
Harold W. Batchelor .....	Assistant Professor .....	1,250.00
Charles L. Thrash .....	Instructor .....	950.00

## ZOOLOGY AND ENTOMOLOGY

Raymond C. Osburn .....	Professor .....	6,000.00
Herbert Osborn .....	Research Professor .....	5,000.00
D. M. DeLong .....	Professor .....	5,000.00
Alvah Peterson .....	Professor .....	5,000.00
W. M. Barrows .....	Professor .....	4,250.00
F. H. Kreeker .....	Professor .....	353.33
W. J. Kostir .....	Assistant Professor .....	4,000.00
C. H. Kennedy .....	Assistant Professor .....	4,000.00
David F. Miller .....	Assistant Professor .....	2,800.00
W. E. Dunham .....	Instructor .....	2,375.00
John W. Price .....	Instructor .....	2,375.00
Joseph N. Miller .....	Instructor .....	1,925.00
John A. Miller .....	Instructor .....	1,500.00
Wilbur M. Tidd .....	Assistant .....	1,800.00
Lydia A. Jahn .....	Assistant .....	900.00



Lela A. Ewers.....	Assistant .....	900.00
Fred W. Fletcher.....	Assistant .....	900.00
William A. Squires.....	Assistant .....	900.00
John F. Harper.....	Assistant .....	900.00
James B. Mack.....	Assistant .....	300.00
Edward N. Warner.....	Instructor .....	1,350.00
Cyril E. Abbott.....	Assistant .....	900.00
Esther R. Zurcher.....	Assistant .....	600.00
Blanche B. Montgomery.....	Assistant .....	600.00
Donald Borror.....	Graduate Assistant .....	500.00
Edward M. Becton.....	Graduate Assistant .....	500.00
John T. Bigham.....	Graduate Assistant .....	500.00
Joe W. Howland.....	Graduate Assistant .....	333.33
Craig W. Eagleson.....	Graduate Assistant .....	500.00
Arthur C. Cole.....	Graduate Assistant .....	500.00
C. C. Plummer.....	Graduate Assistant .....	500.00
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Ruth Agler	Assistant to Registrar	1,800.00
Florence Donnenwirth	Assistant to Registrar	282.00
Florence Shride	Assistant to Registrar	1,620.00
Mildred F. Orwig	Assistant to Registrar	1,483.33
Josephine Richardson	Assistant to Registrar	1,400.00
Marguerite Fox	Assistant to Registrar	1,300.00
Jean Flautz	Assistant to Registrar	1,100.00
Marguerite Buchanan	Assistant to Registrar	1,283.33
Dorothy Sinkey	Assistant to Registrar	1,283.33
Esther Head	Assistant to Registrar	1,180.00
Dorothea Buckley	Assistant to Registrar	1,080.00
Margaret Bazler	Assistant to Registrar	1,180.00
Marjorie M. Hammond	Assistant to Registrar	1,080.00
Rosemary Bowen	Assistant to Registrar	1,020.00
Ann K. Carr	Assistant to Registrar	170.00
Eleanor Rittel Koch	Assistant to Registrar	1,020.00
Doris C. Haines	Assistant to Registrar	1,020.00
Bonnie A. Farver	Assistant to Registrar	1,020.00
Elinor Cole	Assistant to Registrar	1,020.00
Floy Core	Assistant to Registrar	1,140.00
Clarissa Arndt	Assistant to Alumni Recorder	1,279.17
Kathryn Edmiston	Assistant to Registrar	850.00
Gertrude Horn	Assistant to Registrar	850.00
Esther Packard	Assistant to Registrar	850.00
Marjorie Fassig	Assistant to Registrar	85.00

## ENTRANCE BOARD

Bland L. Stradley .....	University Examiner and Assistant Professor of Education.....	5,000.00
Howard C. Ginn .....	Assistant University Examiner.....	2,500.00
Mary E. Morris .....	Assistant University Examiner (Clerk).....	2,250.00
Adeline Underwood .....	Clerk .....	1,200.00
Dorothy Offenbacher .....	Stenographer .....	411.67
Leona Freshwater .....	Stenographer .....	1,080.00
Mary E. Martin .....	Stenographer .....	538.33
Ethel Mincks .....	Stenographer .....	112.42

## NEWS BUREAU

James E. Pollard .....	Director .....	5,500.00
Josephine B. Reed .....	Clerk .....	1,380.00

## DEAN OF WOMEN

Esther Allen Gaw .....	Dean of Women.....	4,500.00
Alice Rosemond .....	Assistant to Dean.....	383.33
Margaret Carter .....	Assistant to Dean.....	1,100.00
Betty Lee McCord .....	Assistant to Dean.....	1,000.00
Mary V. Bean .....	Assistant to Dean.....	1,500.00
Elinor J. Barnes .....	Jun'or Assistant to Dean of Women.....	360.00
Estelle Hamilton .....	Junior Assistant to Dean of Women.....	180.00
Josephine C. Kurtz .....	Research Assistant.....	1,000.00
Margaret Edwards .....	Stenographer .....	190.00
Helen B. Shawaker .....	Stenographer .....	796.17
Gwendolyn Miles .....	Stenographer .....	496.29
Corrinne V. Johnson .....	File Clerk.....	196.77
Gladys Bingham .....	File Clerk.....	63.23
Mary A. Winter .....	Student File Clerk.....	120.00
Fred Patternson .....	Janitor .....	1,440.00
Freda Cox .....	Housekeeper .....	1,080.00

## STORES AND RECEIVING

F. E. Jones .....	Director .....	4,200.00
Blanche Sullivan .....	Clerk .....	1,860.00
James Lawson .....	Checking Clerk.....	1,800.00
Margaret Schureman .....	Clerk .....	1,140.00
Barbara G. Seaman .....	Clerk .....	1,020.00
Irvin C. Brown .....	Laborer .....	1,200.00
Charles F. Reasoner .....	Tool Room Keeper .....	1,320.00

## STORES AND RECEIVING—HOSPITAL

Leslie W. Rees .....	Pharmacist .....	2,200.00
Robert H. Bower .....	Pharmacist .....	1,800.00
Philip S. Gordon .....	Storekeeper .....	229.35
John E. Swain .....	Storekeeper .....	840.00
Elizabeth A. Zeier .....	Stenographer .....	1,140.00

## STUDENT MEDICAL SERVICE

James S. Wilson .....	Director .....	2,000.00
W. A. Humphrey .....	Assistant Physician .....	1,500.00
J. W. Wilce .....	Associate Physician .....	1,050.00

## TELEPHONE EXCHANGE

Katherine Napier .....	Telephone Operator .....	1,500.00
Certrude Hammell .....	Telephone Operator .....	1,140.00
Margaret O'Neill .....	Telephone Operator .....	1,080.00



## UNIVERSITY PRESS

Wilbur E. Pearce .....	Director .....	5,000.00
Hugh Hardy .....	Clerk .....	1,500.00
G. J. Hoesch .....	Clerk (Janitor) .....	1,260.00
Ernest Ford .....	Mail Carrier (Janitor) .....	1,380.00

## ENGINEER'S OFFICE

William C. McCracken .....	Chief Engineer .....	5,500.00
Charles B. Morrow .....	Assistant Superintendent of Buildings and Grounds..	5,000.00
Charles Feil .....	Refrigeration Mechanic .....	2,400.00
William D. Moody .....	General Relief Man .....	1,320.00
Earl R. Cohee .....	Clerk .....	2,120.00
Esther Hershberger .....	Stenographer .....	220.00
Mary Krautner .....	Stenographer .....	1,200.00
Mary M. Carr .....	Stenographer .....	370.33
Louise Van Dorn .....	Stenographer .....	464.52

## BETTERMENT OF BUILDINGS—CARPENTERS

John Kraner .....	Foreman (Carpenter) .....	2,760.00
E. I. Martin .....	Carpenter .....	2,340.00
Charles Blesch .....	Carpenter .....	2,280.00
W. E. Steel .....	Carpenter .....	2,280.00
A. H. Sipple .....	Carpenter .....	2,280.00

## BETTERMENT OF BUILDINGS—PAINTERS

Max Lehman .....	Foreman (Painter) .....	2,160.00
Earling Howard .....	Painter .....	1,800.00
Otis Betts .....	Painter .....	1,800.00
James Brain .....	Painter .....	1,440.00
L. A. Christian .....	Painter's Helper .....	1,400.00
John M. Starkey .....	Painter's Helper .....	232.00
Sylvester H. Batey .....	Painter's Helper .....	348.67
Albert Smith .....	Painter's Helper .....	782.80

## BETTERMENT OF BUILDINGS—PLUMBERS

Thomas Graham .....	Foreman (Plumber) .....	3,000.00
Earl Anthony .....	Plumber .....	2,700.00
Polk J. Tennant .....	Plumber .....	2,700.00
E. E. Inscho .....	Plumber's Assistant .....	2,240.00
Ralph Bobb .....	Plumber's Assistant .....	1,740.00
Benjamin Oyer .....	Plumber's Assistant .....	1,620.00
Oriel Howells .....	Plumber's Apprentice .....	1,100.00
S. R. Sher .....	Heat Regulating Man .....	1,920.00

## BETTERMENT OF BUILDINGS—TINNERS

H. R. Johnson .....	Tinner .....	2,100.00
H. C. Batey .....	Tinner's Helper .....	1,320.00

## LIGHT, HEAT AND POWER—GENERATION

Thomas D. Banks .....	Superintendent of Power Plant .....	4,000.00
W. H. Case .....	Assistant Chief Engineer .....	2,220.00
Ross Smeltzer .....	Maintenance Mechanic .....	2,160.00
George Nye .....	Steamfitter—Boilerman .....	2,160.00
H. P. Cassaday .....	Boiler Repairman Helper .....	1,470.96
John O'Rourke .....	Clerk and Timekeeper .....	1,500.00
William Anderson .....	Craneman .....	1,980.00
Thomas Findley .....	Crane Helper .....	1,344.00
Eugene Miller .....	Engineer .....	1,920.00

Robert Huddleston .....	Engineer .....	1,920.00
Charles Dick .....	Engineer .....	1,920.00
Frank Asher .....	Fireman .....	1,740.00
Clarence Snider .....	Fireman .....	1,740.00
William P. Reed .....	Fireman .....	1,740.00
Joseph Temple .....	Fireman .....	328.67
Robert Brown .....	Fireman .....	1,695.33
S. Lowery .....	Fireman—Pumpman .....	1,740.00
LeRoy V. Roberts .....	Pumpman .....	1,380.00
W. H. Kear .....	Pumpman .....	1,380.00
Francy McGinnis .....	Fireman's Helper .....	1,344.00
C. L. Mincer .....	Fireman's Helper .....	1,344.00
D. Winters .....	Fireman's Helper .....	1,344.00
Jesse Johnson .....	Ash Wheeler .....	1,344.00
H. J. Roberson .....	Ash Wheeler .....	1,344.00
Domonic Bennedetto .....	Ash Wheeler .....	1,344.00
Thomas B. Clark .....	Laborer .....	1,344.00
Norman Thompson .....	Laborer .....	1,320.00
J. Fredo .....	Laborer .....	1,200.00
Thomas E. Waltz .....	Laborer .....	1,086.40
J. L. Johnston .....	Pump Man .....	46.00
Fred Brewer .....	Engineer (retired) .....	720.00

## LIGHT, HEAT AND POWER—ELECTRICIANS

George Dillahunt .....	Foreman Electrician .....	2,300.00
Elmer Cavender .....	Electrician .....	2,160.00
Glenn Stoodly .....	Electrician .....	1,960.00
F. L. Heischman .....	Electrician .....	800.00
Etnair Lanning .....	Electrician .....	1,078.71
C. T. Fippin .....	Assistant Electrician .....	1,860.00
Earl Achey .....	Assistant Electrician .....	1,780.00
Robert Murphy .....	Handy Man .....	1,920.00

## LIGHT, HEAT AND POWER—MACHINISTS

John P. Covan .....	Master Mechanic .....	2,400.00
Arthur Peglar .....	Mechanic .....	1,920.00
Fred Harris .....	Mechanic .....	1,914.84
B. A. LeBay .....	Machinist's Helper .....	1,620.00
I. C. Reasoner .....	Blacksmith .....	1,740.00
Charles Reasoner .....	Blacksmith's Helper .....	1,320.00

## LIGHT, HEAT AND POWER—STEAMFITTERS

George E. Shepherd .....	Foreman Steamfitter .....	2,400.00
James Schweizer .....	Night Troubleman .....	2,160.00
Mike Yeager .....	Steamfitter .....	2,040.00
Henry C. Herdt .....	Steamfitter .....	2,160.00
Fred Faust .....	Steamfitter's Helper .....	1,380.00
C. Knoblauch .....	Steamfitter's Helper .....	1,380.00
George Grover .....	Fireman .....	1,680.00
William Ranney .....	Fireman (7 months) .....	980.00

## POLICE AND WATCHMEN

William North .....	Day Policeman .....	1,650.00
H. S. Brown .....	Night Policeman .....	1,560.00
Charles G. Kalb .....	Policeman .....	1,500.00
Jay J. Farrell .....	Traffic Officer .....	1,500.00
O. D. Conaway .....	Night Supervisor .....	1,500.00
Thomas Bortle .....	Night Watchman .....	1,440.00
H. M. Cole .....	Night Watchman .....	1,380.00
B. L. Johnson .....	Night Watchman .....	1,380.00
Elmer T. Neff .....	Night Watchman .....	1,380.00



Solomon D. Isennagle.....	Night Watchman .....	1,380.00
Michael J. Durkin .....	Night Watchman .....	1,380.00
Harry L. Dixon .....	Night Watchman .....	1,380.00
Ellis Belcher .....	Night Watchman .....	1,058.00
H. B. Case .....	Night Watchman .....	550.00
Lewis J. Dale .....	Night Watchman .....	330.00

## ROADS AND GROUNDS

Paul H. Elleman .....	Civil Engineer .....	3,000.00
Robert Graham .....	Engineer's Helper .....	1,500.00
R. A. Bowers .....	Dragline Operator .....	1,800.00
Thomas Fraggott .....	Dragline Helper .....	1,500.00
Earl Bilderbeck .....	Foreman of Campus .....	1,800.00
John Bugna .....	Laborer .....	1,380.00
Adolf Singenstreu .....	Laborer .....	1,380.00
P. H. Truax .....	Laborer .....	1,380.00
Felix Coletta .....	Laborer .....	1,320.00
L. Stewart .....	Laborer .....	1,260.00
Alphonse L. Javoie .....	Laborer .....	1,260.00
Paul Pinther .....	Laborer .....	1,260.00
A. Chesbro .....	Laborer .....	1,200.00
John Rhone .....	Laborer .....	1,140.00
J. Hobart .....	Laborer .....	1,140.00
John Costanzo .....	Laborer .....	440.00

## ROADS AND GROUNDS—STONE LABORATORY

Theodore Phillips .....	Caretaker .....	1,680.00
Ernest Miller .....	Assistant Caretaker .....	1,500.00

## ROADS AND GROUNDS—GARAGE

Howard McDonald .....	Auto Mechanic .....	1,890.00
William J. Murray .....	Auto Painter .....	1,890.00
J. McKinley Stewart .....	Laborer .....	1,500.00
Leo Moran .....	Truck Driver .....	1,380.00
Roy W. Shaffer .....	Trick Driver .....	298.06
James F. Ruhl .....	Truck Driver .....	990.00
C. D. Lowery .....	Laborer .....	1,320.00
Thomas Maher .....	Bus Driver .....	315.00
Pearl E. Watson .....	Bus Driver .....	900.00
Hilas B. Boyer .....	Car Cleaner .....	1,200.00

## ROADS AND GROUNDS—LANDSCAPE GARDENERS

John E. Hussey .....	Landscape Gardener .....	2,500.00
Harold Esper .....	Assistant Landscape Gardener .....	1,986.67
William Lloyd .....	Laborer .....	1,320.00
Lewis J. Feiber .....	Laborer .....	880.00
Frank McDonald .....	Gardener .....	55.00
Edgar Haigh .....	Laborer .....	50.00
Theodore Kent .....	Laborer .....	50.00
Carl Rickerson .....	Laborer .....	50.00

## JANITORS

A. O. Kaiser .....	Superintendent of Janitor Service .....	2,560.00
R. M. Thaxton .....	Natatorium Orderly .....	533.33
Cecil J. Dysart .....	Natatorium Orderly .....	1,455.33
C. M. Hicks .....	Repair and Handy Man .....	1,440.00
Forrest Spencer .....	Janitor .....	1,440.00
Thad S. Blackwood .....	Janitor .....	1,440.00
James H. Kramer .....	Janitor .....	1,440.00
Harry Chantler .....	Janitor .....	1,440.00

Charles G. Lane	Janitor	1,440.00
A. D. Grayson	Janitor	1,440.00
William Daehler	Janitor	1,440.00
M. F. Cooney	Janitor	1,440.00
Walter Penn	Janitor	1,440.00
L. F. Jordan	Janitor	1,440.00
Charles Carter	Janitor	1,440.00
W. Curry	Janitor	1,440.00
Edward J. Tyne	Janitor	1,440.00
Fred Henkel	Janitor	1,380.00
R. M. Moore	Janitor	920.00
Oliver Smith	Janitor	1,380.00
William Cavanaugh	Janitor	1,380.00
W. W. Smith	Janitor	1,380.00
Dan Brock	Janitor	1,380.00
J. R. Butler	Janitor	1,380.00
C. M. Shelton	Janitor	1,380.00
C. A. Hopkins	Janitor	1,380.00
Arthur Stone	Janitor	1,380.00
M. Murphy	Janitor	920.00
John M. Wallace	Janitor	1,380.00
Perry R. Davis	Janitor	1,380.00
Willis Abbott	Janitor	1,380.00
George Wilson	Janitor	1,380.00
Elmer E. Smith	Janitor	1,380.00
C. Ashenhurst	Janitor	115.00
John M. Conti	Janitor	1,380.00
Lawrence J. McKenna	Janitor	1,380.00
John S. Long	Janitor	1,380.00
George Perkins	Janitor	1,380.00
Joe Walker	Janitor	1,380.00
Peter J. Marquette	Janitor	1,380.00
William Shelton	Janitor	1,380.00
C. A. Hopper	Janitor	1,380.00
Robert E. Hillery	Janitor	1,380.00
Albert N. Tracy	Janitor	1,320.00
George W. Newman	Janitor	1,380.00
Alexander McCall	Janitor	1,380.00
John H. Jaeger	Janitor	1,380.00
Fred Cardosi	Janitor	1,380.00
William Goff	Janitor	1,380.00
John G. McCartney	Janitor	1,380.00
Monroe F. Walters	Janitor	1,380.00
Edward J. Long	Janitor	1,380.00
Patrick J. Keenan	Janitor	1,380.00
William H. Williams	Janitor	1,380.00
Joe Forcheski	Janitor	1,380.00
Elmer McDowell	Janitor	920.00
J. A. Von Schritzt	Janitor	1,380.00
Weston W. West	Janitor	1,088.67
Earl Bell	Window Washer	1,380.00
L. A. Hall	Window Washer	1,380.00
Nelson Weiler	Floor Waxer	1,380.00
Edgar McGhee	Floor Waxer	1,380.00
L. S. Hitchcock	Janitor	880.00
John Tordiff	Janitor	1,320.00
H. Clemons	Janitor	1,320.00
James Merrill	Janitor	1,320.00
James Gormley	Janitor	1,320.00
Joseph H. Dickson	Janitor	1,320.00
James E. Harrington	Janitor	1,340.00
Arch F. Thomas	Janitor	1,320.00
John B. Truitt	Janitor	1,320.00
Robert Sams	Janitor	1,320.00



Charles E. Klinek	Janitor	1,320.00
Thomas Scott	Janitor	1,320.00
Clifford Gabbert	Janitor	1,320.00
Herman Kauffman	Janitor	1,370.00
John Conti	Janitor	1,320.00
John F. Hill	Janitor	1,260.00
E. J. Nutt	Janitor	1,260.00
David L. James	Janitor	1,260.00
William E. Conant	Janitor	1,260.00
John Brown	Janitor	1,200.00
Arthur Koenig	Janitor (Student)	27.50
John Lapaty	Janitor	1,084.83
Harry E. Munk	Janitor	1,065.67
Joseph Schrader	Janitor	1,150.00
Joseph M. Peyton	Janitor	1,100.00
Lewis E. Walters	Janitor	1,100.00
Fred Henning	Janitor	990.00
Frank J. Then	Janitor	862.50
F. B. Cross	Janitor	440.00
Henry Renz	Janitor	440.00
Will George Howard	Janitor	440.00
A. J. Frank	Janitor	110.00
W. J. Whalen	Janitor	162.50
Clara Derflinger	Janitress	960.00
Viola Parsley	Janitress	960.00
Lou Cornett	Janitress	960.00
Rosa Lee Carter	Janitress	450.00
Nellie Rhodes	Janitress	900.00
Alice Thompson	Janitress	840.00
Hettie Hampton	Janitress	840.00
Winifred Rhea	Janitress	45.97
Viola Jones	Janitress	184.19
Pearl Meadows	Janitress	240.00
Mary Powers	Matron Rest Room	900.00
Hattie Lake	Matron	75.00
M. S. Harvey	Elevator Man	720.00
R. H. McGreevy	Elevator Man	720.00

## LAUNDRY

Oscar O. Beidelman	Lauderer	1,320.00
Myrtle Faught	Laundress	1,320.00
May Rees	Laundress	1,020.00
Elizabeth Westenhaber	Laundress	900.00
Dolly Gray	Laundress	900.00
Clara Williams	Laundress	900.00
Rose Long	Laundress	900.00
Emma Munyan	Laundress	900.00
Mayme Becker	Laundress	900.00
Maudie Schultz	Laundress	900.00

## UNIVERSITY ARCHITECT

H. Dwight Smith	Professor of Architecture	6,533.33
J. N. Bradford	Professor of Architecture	5,500.00
H. F. Reichard	Chief Draftsman	3,800.00
C. F. Mayer, Jr.	Draftsman	3,200.00
P. E. Crider	Draftsman	2,800.00
A. H. Mickey	Superintendent of Construction	3,000.00
Marion A. Carter	Architectural Engineer	1,666.67
Elsie Edwards	Clerk	1,560.00

## ROBINSON FELLOWSHIP No. 5056

Edgar R. Robinson	Fellow	750.00
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## LORD FELLOWSHIP No. 5054

Harold L. Parker .....	Fellow .....	750.00
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## LAMME SCHOLARSHIP No. 5048

Millard Rosenfeld .....	Scholar .....	450.00
Grant A. Pettit .....	Scholar .....	450.00

## FARM ROTARY

Hester Groezinger .....	Stenographer .....	720.00
Wilbur E. Baker .....	Supervisor of Rotary Accounts .....	400.00
Flo Bailey .....	Stenographer .....	405.00

## DENTAL CLINIC—ROTARY

D. P. Snyder .....	Assistant Professor .....	1,800.00
Wendell D. Postle .....	Instructor .....	1,500.00
Wilbur L. Marshall .....	Instructor .....	1,200.00
Carl O. Boucher .....	Instructor .....	800.00
Joel G. Barnhart .....	Instructor .....	750.00
O. O. Mobberly .....	Superintendent of Laboratories .....	3,600.00
Emma Smith .....	Technical Assistant .....	800.00
Nora Moore .....	Technical Assistant .....	800.00
Edna Wallace .....	Stenographer .....	1,200.00
Allie F. Harness .....	Clerk .....	1,000.00
Virginia Moore .....	Clerk .....	960.00
Mercedes Lang .....	Clerk .....	720.00
Estelle Reber .....	Clerk .....	200.00
Sue Merrill .....	Janitress .....	840.00

## DISPENSARIES—ROTARY

Grace Jordan .....	Assistant .....	400.00
Katherine Worth .....	Technical Assistant .....	810.00
Addie Burris .....	Maid .....	300.00

## BRACE SHOP—ROTARY

Oscar S. Peterson .....	Mechanic .....	2,600.00
Carl P. Effler .....	Technical Assistant .....	200.00

## UNIVERSITY HOSPITAL—ROTARY

Hugh J. Means .....	Consulting Radiologist .....	1,200.00
Ernest Scott .....	Pathologist .....	500.00
Edith Miller .....	Pathologist .....	300.00
Carl L. Spohr .....	Clinical Pathologist .....	1,000.00
Jessie Jasper .....	Anesthetist .....	2,600.00
Emilie Kaiser .....	Anesthetist .....	1,800.00
Emily Greer .....	Investigator .....	525.00
Faye Irvin .....	Technician .....	1,800.00
Alice Bustin .....	Technical Assistant .....	50.00
Elijah McDavid .....	Janitor .....	660.00
Margaret Porter .....	Technical Assistant .....	1,080.00
Gertrude Gibbon .....	Technical Assistant .....	500.00
Josephine Roberts .....	Supervising Nurse .....	1,500.00
Ruth Benton Degraffenriedt .....	Diet Kitchen Helper .....	600.00
Clementine Berry .....	Diet Kitchen Helper .....	350.00
Marietta Engram .....	Diet Kitchen Helper .....	250.00
Bertha Dillon Dungan .....	Telephone Operator .....	960.00
Mae McGill .....	Nurses Aid .....	67.74
Florence Lenahan .....	Nurses Aid .....	150.00
Hannah Christensen .....	Nurses Aid .....	386.67
Midget Irene Maher .....	Nurses Aid .....	225.00
Kathryn V. Robinson .....	Nurses Aid .....	100.00
Drusilla Hull .....	Nurses Aid .....	30.00
Stella Lee .....	Nurses Aid .....	106.67
Edna Sadler .....	Nurses Aid .....	91.94



## UNIVERSITY PRESS—ROTARY

Charles E. Watts .....	Foreman .....	3,200.00
Paul J. Steinberger .....	Night Foreman .....	2,704.00
Robert W. Hodgson .....	Printer .....	2,808.00
William E. Hull .....	Printer .....	442.00
Joseph A. Krebs .....	Printer .....	2,548.00
Charles D. Kalb .....	Printer .....	2,496.00
Clyde Hodgson .....	Printer .....	2,444.00
Vinton Gerhardt .....	Printer .....	2,444.00
Frank A. Huff .....	Compositor .....	2,496.00
Roy E. Campbell .....	Night Linotype Operator .....	2,704.00
Roy F. Eichbaum .....	Night Linotype Operator .....	442.00
Ray G. Burgoon .....	Night Linotype Operator .....	2,652.00
Fred E. Plimell .....	Night Linotype Operator .....	2,652.00
Irvin G. Stein .....	Linotype Machinist Operator .....	2,652.00
William R. Stephens .....	Linotype Operator .....	2,548.00
Harry H. Rule .....	Linotype Operator .....	1,911.00
William H. Ziebold .....	Linotype Operator .....	2,138.50
Tracy Burke .....	Linotype Operator .....	2,444.00
William J. Monroe .....	Pressman .....	234.00
Albert P. Taylor .....	Pressman .....	2,496.00
Charles Gerhardt .....	Pressman .....	2,444.00
Verne Osborne .....	Pressfeeder .....	2,444.00
Charles E. Taylor .....	Folding Machine Operator .....	2,444.00
John S. Murray .....	Folding Machine Operator .....	2,444.00
Wm. J. Monroe, Jr. ....	Pressman .....	1,170.00
Christ Jenkins .....	Assistant Pressman .....	2,184.00
Clyde W. Beymer .....	Assistant Pressman .....	1,565.00
Elsie Rigby .....	Job Press Feeder .....	858.00
Charles W. Thompson .....	Bindery Foreman .....	2,808.00
William Taylor .....	Bookbinder .....	2,496.00
Arthur E. Dunn .....	Bookbinder .....	2,444.00
Elmer V. English .....	Bookbinder .....	2,444.00
William H. Stein .....	Bookbinder .....	740.91
Clara B. Harding .....	Bindery Woman .....	1,612.00
Louise Bierstedt .....	Bindery Woman .....	1,196.00
Bertha Brown .....	Bindery Woman .....	1,300.00
Emma L. Crego .....	Bindery Woman .....	1,126.24
Augusta McCoy .....	Bindery Woman .....	1,144.00
Cecile E. Trace .....	Bindery Woman .....	1,144.00
Florien H. Brooks .....	Bindery Woman .....	1,061.82
Effie L. Schug .....	Bindery Woman .....	1,026.00
Gertrude Roehrer .....	Bindery Woman .....	1,122.55
Theresa Dague .....	Bindery Worker .....	1,144.00
Frank Jones .....	Apprentice .....	1,300.00
Walton O. Weaver .....	Apprentice .....	832.00
Lowell A. Burke .....	Apprentice .....	728.00
Florence Andrews .....	Editorial Assistant .....	1,300.00
Jeannette A. Reed .....	Proofreader .....	1,560.00
Mildred Schumacher .....	Proofreader .....	1,196.00
Eileen Morrissey .....	Stenographer .....	1,200.00
Josephine Conti .....	Clerk .....	710.16
Helen Neunherz .....	Clerk .....	490.00
Cary S. Ellison .....	Janitor .....	1,320.00
George M. Ginn .....	Printer .....	2,600.00

## STORES AND RECEIVING—ROTARY

## GENERAL STORE ROOM

Charles Pugh .....	Stock Clerk .....	1,560.00
Frank Langworthy .....	Laborer .....	1,400.00
H. O. Baker .....	Laborer .....	220.00
W. D. Myers .....	Laborer .....	606.77

D. R. Masters .....	Janitor .....	945.00
Joseph Paquin .....	Laborer .....	1,200.00
Roy Burgett .....	Laborer .....	1,140.00
Harry Sanders .....	Laborer .....	600.00
Gordon Waldon .....	Laborer .....	540.00
Carl Morris .....	Laborer .....	293.23
C. O. Yochum .....	Laborer .....	270.00
Wilma L. Murtha .....	Stenographer .....	1,300.00
Lura Ruff .....	Typist .....	595.00
Josephine A. Lind .....	Typist .....	765.00
Lucille Moore .....	Typist .....	425.00

## LABORATORY SUPPLY STORE

C. W. McClintock .....	Storekeeper .....	3,800.00
H. W. Miller .....	Pharmacist .....	2,320.00
L. S. Gormley .....	Pharmacist .....	2,320.00
Frank D. Brill .....	Pharmacist .....	2,320.00
Lowell H. Ruff .....	Pharmacist .....	2,160.00
Fred L. Williams .....	Pharmacist .....	2,060.00
Donald C. Van Dyke .....	Pharmacist .....	1,900.00
Richard McClarren .....	Pharmacist .....	1,800.00
R. B. Leonard .....	Glassblower .....	2,460.00
William E. Leonard .....	Glassblower's Helper .....	1,440.00
H. L. Allison .....	Laborer .....	1,740.00
John E. Swain .....	Laborer .....	420.00
Amaza Sells .....	Laborer .....	1,200.00
Charles Kidwell .....	Laborer .....	285.00
Raymond Roush .....	Laborer .....	1,060.00
Joseph Luckhaupt .....	Laborer .....	1,020.00
Donald Morgan .....	Laborer .....	425.00
Scott Dawson .....	Laborer .....	640.00
Aden L. Duffee .....	Laborer .....	400.00
Clyde Minto .....	Bookkeeper .....	1,650.00
Clara Fleischer .....	Clerk .....	1,500.00
Stenna A. Hiler .....	Clerk .....	1,200.00

## PHOTOGRAPHY—ROTARY

Frank H. Haskett .....	Professor and Chairman of Department .....	1,500.00
George S. Wolfram .....	Photographer .....	2,300.00
Charles T. Moore .....	Photographer .....	1,516.67
Mabel K. Clum .....	Typist .....	1,333.33

## STUDENT MEDICAL SERVICE—ROTARY

M. F. Osborn .....	First Associate Director .....	4,000.00
Harry LeFever .....	Second Associate Director .....	4,000.00
Shirley Armstrong .....	Third Associate Director .....	500.00
Margaret Robinson .....	Fourth Associate Director .....	500.00
James A. Beer .....	Associate Physician (part time) .....	1,050.00
George B. Watson .....	Associate (part time) .....	375.00
Lucille Young .....	Nurse .....	2,000.00
Dolores Stocklin .....	Assistant Nurse .....	945.00
Maud M. Eckhardt .....	Clerk .....	1,440.00
Margaret Cahill .....	Stenographer .....	1,020.00

## AGRICULTURAL EDUCATION—SMITH -HUGHES

W. F. Stewart .....	Professor .....	2,000.00
H. G. Kenestrick .....	Assistant Professor .....	3,300.00
L. E. Jackson .....	Assistant Professor .....	3,500.00
A. C. Kennedy .....	Instructor .....	3,000.00
E. O. Bolender .....	Instructor .....	3,000.00



F. J. Ruble .....	Instructor .....	2,900.00
R. G. McMurray .....	Instructor .....	2,800.00
Howard McClarren .....	Instructor .....	2,800.00
Helen Killworth .....	Stenographer .....	1,200.00

## HOME ECONOMICS—SMITH-HUGHES

Alice M. Donnelly .....	Assistant Professor .....	1,500.00
Clara M. Bancroft .....	Assistant Professor .....	2,750.00
Hazel Huston .....	Assistant Professor .....	2,850.00
Louise Shaner Wolfram .....	Instructor .....	2,300.00
Esther Loomis .....	Instructor .....	2,400.00
Estelle Barton .....	Instructor .....	2,100.00
Marie Kuglen .....	Stenographer .....	1,440.00
Elizabeth Moore .....	Assistant .....	900.00

## BOARD OF CHRISTIAN EDUCATION—ROTARY

Walter F. Sanders .....	Fellow .....	1,000.00
William A. Ashbrook .....	Fellow .....	150.00
Robert N. Bear .....	Fellow .....	200.00

## J. T. BAKER CHEMICAL COMPANY—ROTARY

Philip G. Horton .....	Fellow .....	1,000.00
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## STRUCTURAL CLAY TILE ASSOCIATION—ROTARY

H. D. Foster .....	Senior Research Engineer .....	4,000.00
D. B. Hall .....	Junior Research Engineer .....	2,100.00
Tajamul Husain .....	Junior Research Engineer .....	2,100.00

## PAYNE FUND MOTION PICTURE RESEARCH—ROTARY

Dorothy K. Postle .....	Fellow .....	1,500.00
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## CALCIUM CHLORIDE PUBLICITY COMMITTEE—ROTARY

Carl Shreve .....	Fellow .....	300.00
Wilder D. Foster .....	Fellow .....	750.00

## E. I. DuPONT DE NEMOURS AND COMPANY—ROTARY

Anthony George .....	Fellow .....	750.00
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## AMERICAN INSTITUTE OF STEEL CONSTRUCTION—ROTARY

Frank Dickerson, Jr. ....	Fellow .....	750.00
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## NATIONAL ELECTRIC LIGHT ASSOCIATION—ROTARY

I. P. Blauser .....	Secretary and Field Engineer .....	3,300.00
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## OHIO SALT COMPANY FELLOWSHIP—ROTARY

Joe Koffolt .....	Fellow .....	300.00
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## PULLMAN SCHOLARSHIP—ROTARY

Wm. F. Schollenbarger .....	Scholar .....	250.00
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## BARRETT COMPANY FELLOWSHIP—ROTARY

Robert E. Yoder .....	Fellow .....	1,000.00
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## OHIO STATE FLORISTS ASSOCIATION—ROTARY

Ray B. Christianson .....	Fellow .....	600.00
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## DANIEL GUGGENHEIM FUND FOR THE PROMOTION OF AERONAUTICS

Russell C. Newhouse .....	Fellow .....	1,000.00
William L. Everitt .....	Senior Research Engineer .....	1,000.00

## TAU BETA PI FELLOWSHIP

Stanley V. Allen .....	Fellow .....	600.00
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## ADULT EDUCATION—ROTARY

Mrs. Arthur L. Pierstorff .....	Instructor .....	750.00
Mrs. Hermann C. Miller .....	Instructor .....	1,125.00
Florence M. Hornbeck .....	Instructor .....	1,800.00
Dr. A. K. Nelson .....	Instructor .....	2,062.50
Caryl Bents .....	Assistant .....	800.00
George Reavis .....	Assistant .....	1,083.87

## PSYCHOLOGY—ROTARY

Charles Scott Berry .....	Professor .....	500.00
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## SCHOOL ADMINISTRATION—ROTARY

D. H. Eikenberry .....	Professor .....	1,500.00
Dwight B. Ireland .....	Assistant .....	300.00
E. Lucille Keep .....	Typist .....	540.00

## BAILEY METER COMPANY GIFT—ROTARY

Thornton C. Barnes .....	Junior Research Engineer .....	875.81
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## NATIONAL KRAUT PACKERS ASSOCIATION—ROTARY

Robert E. Young .....	Fellow .....	50.00
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## POTASH EXPORT COMPANY—ROTARY

Glen S. Carpenter .....	Fellow .....	50.00
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# APPENDIX V

## THE WORK OF INSTRUCTORS—1929-1930

COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
<b>ACCOUNTING</b>												
Elements of Accounting .....	401	5	15	401	5	232	401	5	230	401	5	132
Elements of Accounting .....	402	5	18	402	5	72	402	5	179	402	5	191
Outlines of Accounting .....	...	...	...	405	5	57	405	5	34	...	...	...
Principles of Accounting .....	601	5	14	601	5	39	601	5	65	601	5	52
Principles of Accounting .....	...	...	...	602	5	22	602	5	29	602	5	18
Cost Accounting .....	...	...	...	603	4	24	603	4	46	...	...	...
Cost Accounting .....	...	...	...	...	...	...	604	4	20	604	4	32
Problems in Cost Accounting .....	...	...	...	605	3	10	...	...	...	...	...	...
Institutional Accounting .....	...	...	...	...	...	...	...	...	...	606	...	5
Auditing .....	607	2	12	607	2	28	607	2	3	...	...	...
Auditing .....	608	2	13	...	...	...	608	2	26	608	2	9
Income Tax Accounting .....	...	...	...	611	2	18	...	...	...	611	2	50
Constructive Accounting .....	...	...	...	612	4	20	...	...	...	612	4	29
Accounting Practice .....	613	4	11	613	4	29	613	4	12	...	...	...
Accounting Practice .....	...	...	...	...	...	...	614	4	25	614	4	17
Business Statements .....	...	...	...	616	3	19	616	3	18	616	3	62
Managerial Accounting .....	...	...	...	...	...	...	617	3	8	...	...	...
Managerial Accounting .....	...	...	...	...	...	...	...	...	...	618	3	7
Retail Accounting .....	...	...	...	623	3	10	...	...	...	...	...	...
Factory Costs .....	...	...	...	...	...	...	...	...	...	624	5	70
Research in Accounting .....	...	...	...	...	...	...	802	...	1	...	...	...
Research in Accounting .....	...	...	...	...	...	...	...	...	...	803	...	1
Graduate Seminary in Accounting .....	...	...	...	804	2	2	...	...	...	...	...	...
Graduate Seminary in Accounting .....	...	...	...	...	...	...	805	3	3	...	...	...
Graduate Seminary in Accounting .....	...	...	...	...	...	...	...	...	...	806	3	2
Thesis .....	...	...	...	...	...	1	...	...	...	...	...	...
<b>AGRICULTURAL CHEMISTRY</b>												
General Agricultural Chemistry .....	...	...	...	401	5	48	401	5	34	401	5	36
Household Chemistry .....	...	...	...	402	5	37	402	5	47	402	5	26
Household Chemistry .....	...	...	...	403	5	16	403	5	32	403	5	45
Introductory Agricultural Analysis .....	...	...	...	404	3	1	...	...	...	...	...	...
Animal Chemistry .....	...	...	...	...	...	...	...	...	...	406	3	18
Advanced Biological Chemistry .....	...	...	...	...	...	...	601	5	42	...	...	...

## THE WORK OF INSTRUCTORS—1929-1930—Continued

COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Dairy Chemistry .....	...	...	...	604	5	14	...	...	...	...	...	...
Dairy Chemistry .....	...	...	...	...	...	...	605	5	10	...	...	...
Advanced Dairy Chemistry .....	...	...	...	...	...	...	...	...	...	606	5	7
Animal Nutrition .....	...	...	...	...	...	...	...	...	...	608	5	12
Special Problems .....	...	...	...	701	3-15	2	701	3-15	3	701	3-15	4
Plant Chemistry .....	...	...	...	...	...	...	...	...	...	801	5-15	4
Special Problems .....	...	...	...	802	5-15	3	802	5-15	3	802	5-15	5
Research .....	...	...	...	803	5, 10 or 15	6	803	5, 10 or 15	3	803	5, 10 or 15	5
Seminary .....	...	...	...	804	1	5	804	1	6	804	1	7
AGRICULTURAL EDUCATION												
Principles Applied to Teaching of Vocational Agriculture in Secondary Schools .....	400	5	5	...	...	...	400	5	10	400	5	15
Teaching of Vocational Agriculture in Secondary Schools .....	401	5	10	401	5	17	...	...	...	...	...	...
Observation of Teaching of Vocational Agriculture .....	...	...	...	402	5	9	402	5	14	402	5	11
Supervised Teaching of Vocational Agriculture .....	...	...	...	403	5	9	403	5	14	403	5	11
Special Methods of Teaching Vocational Agriculture in Secondary Schools .....	601	5	10	...	...	...	601	5	8	601	5	14
Special Problems .....	801	3-12	14	801	3-12	2	801	3-12	2	801	3-12	2
AGRICULTURAL ENGINEERING												
Field Machinery .....	...	...	...	401	5	40	401	5	51	...	...	...
Plan Reading .....	...	...	...	402	3	30	402	3	44	402	3	45
Farm Motors and Tractors .....	...	...	...	...	...	...	404	5	11	404	5	4
Farm Utilities .....	...	...	...	...	...	...	405	5	6	...	...	...
Farm Structures .....	...	...	...	...	...	...	...	...	...	602	5	6
Advanced Farm Power and Power Machinery .....	...	...	...	603	5	8	...	...	...	...	...	...
Farm Drainage .....	...	...	...	...	...	...	...	...	...	604	5	6
Advanced Field Machinery .....	...	...	...	...	...	...	...	...	...	605	5	8
Special Problems .....	...	...	...	701	3-5	3	701	3-5	6	701	3-5	6
Research .....	...	...	...	...	...	...	...	...	...	801	3-10	1
Research .....	...	...	...	...	...	...	802	3-10	1	...	...	...



# AGRICULTURAL EXTENSION

Extension Methods .....	...	...	...	...	...	...	...	...	401	3	16
Comparative Anatomy and Embryology .....	...	...	...	...	...	406	5	92	...	...	...
Comparative Anatomy and Embryology .....	...	...	...	...	...	...	...	...	407	5	87
Visceral Anatomy .....	...	...	410	3	58	...	...	...	...	...	...
Elementary Human Anatomy .....	...	...	...	...	...	...	...	...	412	5	68
Comparative Anatomy of the Vertebrates .....	...	...	...	...	...	414	5	73	...	...	...
The Eye .....	...	...	...	...	...	...	...	...	437	4	12
Advanced Comparative Anatomy .....	...	...	604	3 or 5	2	...	...	...	...	...	...
Advanced Comparative Anatomy .....	...	...	...	...	...	605	3-5	2	...	...	...
Advanced Comparative Anatomy .....	...	...	...	...	...	...	...	...	606	3-5	2
Comparative Neurology .....	...	...	607	5	1	...	...	...	...	...	...
Comparative Neurology .....	...	...	...	...	...	608	5	1	...	...	...
Cytology .....	...	...	...	...	...	...	...	...	612	5	4
Comparative Anatomy of the Vertebrates .....	...	...	613	5	66	...	...	...	...	...	...
Comparative Anatomy of the Vertebrates .....	...	...	...	...	...	614	5	28	...	...	...
Comparative Vertebrate Embryology .....	...	...	615	5	7	...	...	...	...	...	...
Comparative Vertebrate Embryology .....	...	...	...	...	...	616	5	45	...	...	...
Elementary Neurology .....	...	...	617	5	3	...	...	...	...	...	...
Elementary Neurology .....	...	...	...	...	...	618	5	2	...	...	...
Elementary Neurology .....	...	...	...	...	...	...	...	...	619	5	78
Human Anatomy .....	...	...	621	5	99	...	...	...	...	...	...
Human Anatomy .....	...	...	...	...	...	622	5	96	...	...	...
Gross Anatomy .....	...	...	...	...	...	...	...	...	623	5	80
Histology .....	...	...	624	5	104	...	...	...	...	...	...
Embryology .....	...	...	...	...	...	625	5	95	...	...	...
Neurology .....	...	...	...	...	...	...	...	...	626	5	89
Topographical Anatomy .....	...	...	627	5	66	...	...	...	...	...	...
Special Advanced Anatomy .....	...	...	...	...	...	...	...	...	628	3	1
Human Anatomy .....	...	...	638	7	49	...	...	...	...	...	...
Human Anatomy .....	...	...	...	...	...	639	7	47	...	...	...
Human Anatomy .....	...	...	...	...	...	...	...	...	640	7	64
Anatomical Problems .....	...	...	804	5	1	...	...	...	...	...	...

## ANIMAL HUSBANDRY

Elementary Live Stock Judging .....	...	...	401	5	82	401	5	26	401	5	38
Feeding Live Stock .....	...	...	402	5	55	402	5	36	402	5	16
Types and Breeds of Live Stock .....	...	...	...	...	...	...	...	...	403	5	21
Dairy Cattle Selection and Milk Production .....	...	...	...	...	...	404	3	10	...	...	...
Dairy Cattle Breeds .....	...	...	405	3	23	...	...	...	...	...	...
Breeds of Beef Cattle and Swine .....	...	...	...	...	...	...	...	...	406	3	6
Selection and Cutting of Meat .....	...	...	...	...	...	407	3	22	...	...	...
Breeding Live Stock .....	...	...	...	...	...	...	...	...	409	5	23
Horse Production and Management .....	...	...	...	...	...	601	5	11	...	...	...
Beef Cattle Production and Management .....	...	...	...	...	...	...	...	...	602	5	11
Swine Production and Management .....	...	...	...	...	...	...	...	...	603	5	21
Dairy Cattle Production and Management .....	...	...	...	...	...	604	5	16	...	...	...
Sheep Production and Management .....	...	...	...	...	...	...	...	...	605	5	12
Advanced Live Stock Judging .....	...	...	606	5	10	...	...	...	...	...	...
Meats and Meat Products .....	...	...	...	...	...	607	5	17	...	...	...
Live Stock Markets and Marketing .....	...	...	608	5	17	...	...	...	...	...	...
Breeding Live Stock .....	...	...	...	...	...	609	5	23	...	...	...
Herb Book Study .....	...	...	...	...	...	611	5	1	...	...	...

### THE WORK OF INSTRUCTORS—1929-1930—Continued

COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Extension Problems in Dairy Cattle Production .....	...	...	...	...	...	...	613	5	4	...	...	...
Dairy Seminar .....	...	...	...	...	...	...	...	...	...	614	5	6
Advanced Dairy Cattle Judging.....	...	...	...	...	...	...	...	...	...	615	5	12
Dairy Inspection .....	...	...	...	...	...	...	...	...	...	616	3	10
Dairy Production for Smith-Hughes Students.....	...	...	...	...	...	...	...	...	...	617	5	9
Special Problems .....	...	...	...	701	3-15	3	701	3-15	9	701	3-15	6
Research Work .....	...	...	...	801	3-15	3	801	3-15	1	801	3-15	2
APPLIED OPTICS												
Vision Optics .....	...	...	...	411	4	9	...	...	...	...	...	...
Vision Optics .....	...	...	...	...	...	...	412	4	7	...	...	...
Vision Optics .....	...	...	...	...	...	...	...	...	...	413	4	7
Theoretical Applied Optics.....	...	...	...	421	3	5	...	...	...	...	...	...
Theoretical Applied Optics.....	...	...	...	...	...	...	422	3	5	...	...	...
Theoretical Applied Optics.....	...	...	...	...	...	...	...	...	...	423	3	5
Mechanical Optics .....	...	...	...	431	2	5	...	...	...	...	...	...
Mechanical Optics .....	...	...	...	...	...	...	432	2	5	...	...	...
Mechanical Optics .....	...	...	...	...	...	...	...	...	...	433	2	5
Clinical Laboratory Practice.....	...	...	...	441	5	5	...	...	...	...	...	...
Clinical Laboratory Practice.....	...	...	...	...	...	...	442	5	5	...	...	...
Clinical Laboratory Practice.....	...	...	...	...	...	...	...	...	...	443	5	5
ARCHITECTURE												
Perspective .....	...	...	...	...	...	...	402	3	36	...	...	...
Composition .....	...	...	...	...	...	...	...	...	...	403	3	32
Elements of Architecture.....	...	...	...	410	3	41	...	...	...	...	...	...
Elements of Architecture.....	...	...	...	...	...	...	411	3	29	...	...	...
Elements of Architecture.....	...	...	...	...	...	...	...	...	...	412	3	25
Elements of Architecture.....	...	...	...	420	8	58	...	...	...	...	...	...
Order Problems .....	...	...	...	422	5	8	422	5	16	422	5	16
Order Problems .....	...	...	...	423	5	12	423	5	5	423	5	11
History of Architecture .....	...	...	...	544	3	37	...	...	...	...	...	...
History of Architecture .....	...	...	...	...	...	...	545	3	31	...	...	...
History of Architecture .....	...	...	...	...	...	...	...	...	...	546	3	23
Photography .....	...	...	...	611	3	30	...	...	...	611	3	22
Architectural Design .....	...	...	...	624	5	14	624	5	9	624	5	7
Architectural Design .....	...	...	...	625	5	3	625	5	7	625	5	5
Architectural Design .....	...	...	...	626	8	3	626	8	4	626	8	9
Construction: Wood .....	...	...	...	...	...	...	...	...	...	630	5	8



Construction: Timber Framing.....	...	...	...	...	640	5	15	...	...	...		
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Thesis.....	...	...	...	...	...	718	5	3	718	5	6	
Advanced Architectural Design.....	...	...	727	8	10	727	8	2	727	8	4	
Advanced Architectural Design.....	...	...	728	8	2	728	8	9	728	8	2	
Ornament.....	...	...	...	...	...	729	5	17	...	...	...	
Advanced Architectural Design.....	...	...	730	8	1	...	...	...	730	8	...	
Construction: Masonry and Concrete.....	...	...	736	5	15	...	...	...	...	...	...	
Building Sanitation.....	...	...	...	...	...	737	2	24	...	...	...	
Construction: Design.....	...	...	742	5	12	...	...	...	...	...	...	
Construction: Design.....	...	...	...	...	...	743	5	11	...	...	...	
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General Astronomy.....	...	...	402	5	8	402	5	25	402	5	7	
Practical Astronomy.....	...	...	405	5	3	...	...	...	...	...	...	
Advanced Astronomy.....	...	...	...	...	...	607	3-5	1	...	...	...	
Advanced Astronomy.....	...	...	...	...	...	...	...	...	605	3-5	3	
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Bacteriology.....	...	...	...	...	...	405	3	55	...	...	...	
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Pathogenic Bacteriology.....	...	...	...	...	...	432	5	27	...	...	...	
Bacteriology.....	...	...	...	...	...	...	...	...	450	5	49	
General Bacteriology.....	607	5	56	607	5	99	607	5	25	607	5	39
Pathogenic Bacteria.....	608	3	41	...	...	...	608	3	52	...	...	...
Pathogenic Bacteria.....	609	3	31	...	...	...	609	3	16	...	...	...
Dairy Bacteriology.....	...	...	...	...	...	...	610	3	9	...	...	...
Dairy Bacteriology.....	...	...	...	...	...	...	611	3	6	...	...	...
Water Examination, Sewage Disposal, Water Filtration.....	...	...	...	...	...	...	614	3	5	...	...	...
Bacteriological Chemistry.....	...	...	...	...	...	...	...	...	616	3	15	
Immunity and Serum Therapy.....	...	...	617	3	40	...	...	...	...	...	...	...
Bacteriological Chemistry.....	...	...	...	...	...	...	...	...	620	3	3	
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Special Technic in Pathogenic Bacteriology.....	...	...	...	...	...	626	5	12	...	...	...	...
Special Technic in Pathogenic Bacteriology.....	...	...	...	...	...	...	...	...	627	5	15	
Medical Bacteriology.....	...	...	641	5	51	...	...	...	...	...	...	...
Medical Bacteriology.....	...	...	...	...	...	642	3	52	...	...	...	...
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Research Work in Path. Bacteriology.....	...	...	...	...	...	...	...	...	803	5-10	9	...
BIBLIOGRAPHY												
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## THE WORK OF INSTRUCTORS—1929-1930—Continued

COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
BOTANY												
General Botany .....	401	5	88	401	5	558	401	5	265	401	5	274
General Botany .....	402	5	35	402	5	140	402	5	522	402	5	250
Local Flora .....	...	...	...	...	...	...	...	...	...	405	5	23
Local Flora .....	406	5	18	...	...	...	...	...	...	406	5	21
General Plant Pathology.....	...	...	...	419	5	22	...	...	...	419	5	30
Plant Microtechnic .....	...	...	...	...	...	...	421	5	19	...	...	...
Plant Ecology .....	601	5	17	601	5	19	...	...	...	...	...	...
Plant Ecology .....	...	...	...	...	...	...	...	...	...	602	5	11
Plant Physiology .....	...	...	...	605	5	57	...	...	...	...	...	...
Plant Physiology .....	...	...	...	...	...	...	606	5	45	...	...	...
Prin. of Taxonomy: Pteridophytes and Gymnosperms .....	...	...	...	607	5	2	...	...	...	...	...	...
Principles of Taxonomy: Monocotyls.....	...	...	...	...	...	...	608	5	2	...	...	...
Principles of Taxonomy: Dicotyls.....	...	...	...	...	...	...	...	...	...	609	5	2
Evolution of Plants.....	...	...	...	...	...	...	...	...	...	611	5	5
General Morphology of Thallophytes and Bryophytes .....	...	...	...	613	5	11	...	...	...	...	...	...
General Morphology of the Pteridophytes and Spermatophytes .....	614	5	10	...	...	...	614	5	11	...	...	...
Plant Microchemistry .....	...	...	...	617	5	15	...	...	...	...	...	...
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Economic Botany .....	...	...	...	...	...	...	620	5	4	...	...	...
Physiological Research Methods.....	...	...	...	...	...	...	633	3	13	...	...	...
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Minor Investigations: Taxonomy.....	701	2-5	11	...	...	...	701	2-5	1	...	...	...
Minor Investigations: Physiology and Ecology .....	703	2-5	8	703	2-5	5	703	2-5	9	...	...	...
Minor Investigations: Pathology and Mycology .....	...	...	...	704	2-5	7	704	2-5	4	...	...	...
Research in Systematic Botany.....	...	...	...	801	3-10	2	801	3-10	3	801	3-10	1
Research in Physiology and Ecology.....	803	4-10	2	803	4-10	7	803	4-10	8	803	4-10	11
Botanical Seminary .....	...	...	...	810	1	11	810	1	9	810	1	6
Seminary in the History of Botany.....	...	...	...	...	...	...	812	1	12	...	...	...



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Social Science .....	401	5	183	401	5	136	401	5	203			
Business Communications and Adjustment												
Practice .....	604	3	49	604	3	75	604	3	93			
Business Statistics .....				614	3	33						
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Business Laws: Contracts.....	621	3	102	621	3	126	621	3	118			
Business Law: Agency and Sales.....	623	3	52	623	3	67	623	3	86			
Business Law: Negotiable Instruments.....	625	3	29	625	3	46	625	3	52			
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Business Laws: Legal Aspects of Credits												
and Collections .....							629	3	29			
Business Organization and Control.....	640	3	44	640	3	47	640	3	30			
Real Estate Principles and Practice.....	642	3	16				642	3	18			
Real Estate Principles and Finance.....				643	3	9						
Real Estate Problems.....				644	1-3	1	644	1-3	1			
Trade Associations .....				645	3	12						
Corporation Finance .....	650	5	76	650	5	85	650	5	118			
Industrial Finance .....							652	3	43			
Railroad and Public Utility Finance.....	656	3	7	656	3	22						
Investments .....	658	3	10				658	3	23			
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The Money Market.....							662	3	21			
Foreign Exchange .....				665	3	27						
Practice Work in Banking.....				667	1-3	2						
Practice Work in Banking.....							668	1-3	4			
Bank Organization and Management.....				670	3	7						
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Industrial Organization and Management.....	680	5	97	680	5	66	680	5	69			
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Employment Organization and Management...	686	3	20				686	3	18			
Production Organization and Management...				687	4	10	687	4	18			
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and Management .....	695	1-3	5									
Problems in Production Organization												
and Management .....				696	3	2						
Industrial Problems .....							697	1-3	5			
Marketing .....	700	5	93	700	5	104	700	5	97			
Marketing Problems .....	702	3	33	702	3	50	702	3	29			
Retailing and Wholesaling.....	705	4	27	705	4	29	705	4	24			
Retailing and Wholesaling.....							706	4	15			
Credits and Collections.....				709	3	26	709	3	48			
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Principles of Advertising.....	716	3	27	716	3	61	716	3	57			
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Thesis in Marketing and Advertising.....							723	1-3	3			
Port and Terminal Problems.....				744	3	19						

COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Ocean and Inland Water Commerce and Transportation .....	...	...	...	745	3	16	...	...	...	...	...	...
Valuation and Rate Problems of Railroads and Public Utilities.....	...	...	...	...	...	...	752	3	16	748	3	15
Traffic Management and Rate Making.....	...	...	...	...	...	...	...	...	...	753	3	10
Traffic Management and Rate Making.....	...	...	...	...	...	...	760	3	23	...	...	...
Life Insurance .....	802	1-3	3	...	...	...	...	...	...	803	1-3	1
Research in Corp. Org. and Finance.....	...	...	...	...	...	...	814	1-3	1	815	1-3	1
Research in Corp. Org. and Finance.....	...	...	...	816	3	5	816	3	7	...	...	...
Insurance Problems .....	...	...	...	817	1-6	2	...	...	...	...	...	...
Insurance Problems .....	...	...	...	...	...	...	818	1-6	4	...	...	...
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Research in Marketing.....	819	1-6	7	...	...	...	...	...	...	820	1-3	6
Research in Marketing.....	...	...	...	...	...	...	...	...	...	...	...	...
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Research in Industrial Management.....	...	...	...	...	...	...	...	...	...	837	1-3	2
Research in Industrial Management.....	...	...	...	840	1-6	1	840	1-6	1	...	...	...
Seminary in Corporations and Real Estate.....	...	...	...	...	...	...	...	...	...	...	...	...
Seminary in Transportation and Public Utilities .....	...	...	...	845	3	9	845	3	8	...	...	...
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831-2-3 All Graduate Students in Department and all Faculty participate—no credit												
CERAMIC ENGINEERING												
Occurrence and Properties of Clays.....	...	...	...	...	...	...	401	4	34	...	...	...
Winning, Preparation and Forming.....	...	...	...	...	...	...	...	...	...	405	4	31
Drying and Burning.....	...	...	...	601	5	24	601	5	24	...	...	...
Elements of Ceramic Plant Engineering.....	...	...	...	...	...	...	603	5	20	...	...	...
Bodies, Glazes and Color.....	...	...	...	...	...	...	...	...	...	605	4	30



Refractories and Furnaces.....	...	...	...	615	5	28	...	...	...	610	5	27
Ceramic Calculation.....	...	...	...	...	...	...	...	...	...	...	...	...
Physical and Chemical Measurements of Clays and Other Ceramic Material.....	...	...	...	...	...	...	620	5	22	...	...	...
Junior Inspection Trip.....	...	...	...	...	...	...	...	...	...	630	...	23
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Ceramic Designing.....	...	...	...	705	5	25	...	...	...	...	...	...
Ceramic Designing.....	...	...	...	...	...	...	706	5	26	...	...	...
Ceramic Designing.....	...	...	...	...	...	...	...	...	...	707	5	26
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Thesis.....	...	...	...	711	4	6	...	...	...	711	4	25
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Laboratory in Heavy Clay Wares.....	...	...	...	...	...	...	722	5	5	...	...	...
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Research Work.....	...	...	...	...	...	...	802	3-10	1	...	...	...
Research Work.....	...	...	...	...	...	...	...	...	...	803	3-10	1
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Advanced Industrial Chemistry.....	...	...	...	...	...	...	...	...	...	902	2-5	1
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General Chemistry.....	411	5	24	411	5	934	411	5	60	...	...	...
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
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Quantitative Analysis .....	...	...	...	...	...	...	...	...	...	423	4	109
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Organic Chemistry .....	441	3	44	441	3	280	...	...	...	...	...	...
Organic Chemistry .....	442	3	40	...	...	...	442	3	206	...	...	...
Organic Chemistry .....	444	3	40	444	2	233	...	...	...	...	...	...
Organic Chemistry .....	445	3	37	...	...	...	445	2	195	...	...	...
Elementary Quantitative Analysis.....	...	...	...	561	5	38	...	...	...	...	...	...
Organic Chemistry .....	...	...	...	...	...	...	562	5	17	...	...	...
Physical Chemistry .....	...	...	...	...	...	...	...	...	...	563	5	97
Advanced Quantitative Analysis.....	...	...	...	621	4-5	11	...	...	...	...	...	...
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Qualitative Organic Analysis.....	641	3	23	...	...	...	...	...	...	641	3	26
Quantitative Organic Analysis.....	642	3	15	...	...	...	...	...	...	642	3	15
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Organic Chemistry .....	648	3	30	...	...	...	648	3	81	...	...	...
Organic Chemistry: Laboratory.....	649	3	26	649	3	86	...	...	...	...	...	...
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Physical Chemistry .....	...	...	...	681	3	70	...	...	...	...	...	...
Physical Chemistry .....	...	...	...	...	...	...	682	3	63	...	...	...
Physical Chemistry .....	683	3	18	...	...	...	...	...	...	683	3	60
Physical Chemistry: Laboratory.....	691	2	9	691	2	31	691	2	28	691	2	17
Physical Chemistry: Laboratory.....	692	2	6	...	...	...	...	...	...	...	...	...
Physical Chemistry: Laboratory.....	693	2	10	...	...	...	...	...	...	...	...	...
Colloid Chemistry .....	695	3	26	...	...	...	695	3	15	...	...	...
Theoretical Electrochemistry.....	...	...	...	696	3	11	...	...	...	...	...	...
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Advanced Organic Chemistry	...	...	...	...	...	...	842	3	30	...	...	...
Advanced Organic Preparations: Lab.	...	...	...	844	3-5	18	...	...	...	...	...	...
Advanced Organic Preparations: Lab.	...	...	...	...	...	...	845	3-5	15	...	...	...
Seminary in Organic Chemistry	...	...	...	850	3	15	...	...	...	...	...	...
Seminary in Organic Chemistry	...	...	...	...	...	...	851	3	10	...	...	...
Seminary in Organic Chemistry	...	...	...	...	...	...	...	...	...	852	3	17
Physical Chemistry: Laboratory	861-2-3	3	1	861-2-3	3	3	861-2-3	3	9	861-2-3	3	3
Atomic Structure	...	...	...	...	...	...	...	...	...	865	2	9
Seminary in Inorganic Chemistry	866	2	19	...	...	...	866	2	5	...	...	...
Seminary in Inorganic Chemistry	...	...	...	867	2	5	...	...	...	...	...	...
Adv. Lectures in Physical Chemistry	...	...	...	881	3	8	...	...	...	...	...	...
Adv. Lectures in Physical Chemistry	...	...	...	...	...	...	882	3	15	...	...	...
Seminary in Physical Chemistry	...	...	...	891	3	5	882	3	15	...	...	...
Chemical Research	950	5-15	23	950	5-15	39	950	5-15	47	950	5-15	43

# CIVIL ENGINEERING

Land Surveying	...	...	...	401	5	55	401	5	17	...	...	...
Plane Surveying	...	...	...	...	...	...	402	5	36	402	5	15
Railroad Surveying	...	...	...	403	5	13	...	...	...	403	5	36
Topographic Drawing	...	...	...	404	4	9	404	4	38	...	...	...
Applied Descriptive Geometry	...	...	...	...	...	...	...	...	...	405	4	48
Summer Surveying Camp	407	6	21	...	...	...	...	...	...	...	...	...
Elementary Surveying	...	...	...	411	3	49	...	...	...	411	3	87
Surveying	...	...	...	412	5	4	...	...	...	...	...	...
Topographic Surveying	...	...	...	601	5	33	...	...	...	601	5	6
Sanitary Engineering	...	...	...	602	5	35	...	...	...	...	...	...
Timber Construction	...	...	...	...	...	...	603	5	36	...	...	...
Stresses in Structure	...	...	...	...	...	...	...	...	...	604	5	37
Road and Pavements	...	...	...	...	...	...	...	...	...	605	5	34
Cement and Concrete	...	...	...	...	...	...	606	3	9	606	3	42
Precise Surveying	...	...	...	608	3	31	...	...	...	...	...	...
Adjustment of Observations	...	...	...	...	...	...	609	3	35	...	...	...
Timber and Masonry	...	...	...	...	...	...	611	3	32	...	...	...
Concrete Design	...	...	...	701	5	35	...	...	...	...	...	...
Bridge Design	...	...	...	702	5	51	...	...	...	...	...	...
Water Supply Engineering	...	...	...	...	...	...	703	5	33	...	...	...
Masonry Construction	...	...	...	...	...	...	704	5	35	...	...	...
Masonry Structures	...	...	...	...	...	...	...	...	...	705	5	37
Thesis	...	...	...	706	1	35	...	...	...	...	...	...
Thesis	...	...	...	...	...	...	707	2	34	...	...	...
Thesis	...	...	...	708	5	1	...	...	...	708	5	33
Factory Building Construction	...	...	...	...	...	...	...	...	...	711	3	19
Trusses	...	...	...	712	5	5	712	5	13	...	...	...
Concrete Design	...	...	...	713	5	13	...	...	...	...	...	...
Steel-Frame Buildings	...	...	...	...	...	...	714	5	10	...	...	...
Railway Engineering	...	...	...	730	3	4	...	...	...	...	...	...
Contracts and Specifications	...	...	...	...	...	...	...	...	...	732	3	6
Tall Buildings	...	...	...	733	3	10	...	...	...	...	...	...
Advanced Bridges	...	...	...	...	...	...	734	3	21	...	...	...
Advanced Bridges	...	...	...	...	...	...	...	...	...	735	3	9
Municipal Engineering	...	...	...	736	3	9	...	...	...	...	...	...

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Highway Engineering .....	...	...	...	738	3	7	...	...	...	...	...	...
Grad. Thesis .....	...	...	...	...	...	...	...	5-10	2	...	...	...
CLASSICAL LANGUAGES												
GREEK												
Elementary Greek .....	...	...	...	401	5	17	...	...	...	...	...	...
Elementary Greek .....	...	...	...	...	...	...	402	5	10	...	...	...
Plato .....	...	...	...	...	...	...	...	...	...	403	5	6
Homer .....	...	...	...	404	5	7	...	...	...	...	...	...
Reading and Lectures .....	...	...	...	...	...	...	601	3-5	2	...	...	...
Private Reading and Minor Problems .....	...	...	...	610	2-5	4	610	2-5	2	610	2-5	2
Principles of Historical Study of Language .....	...	...	...	...	...	...	...	...	...	701	3	9
Historical Grammar .....	...	...	...	720	3	4	...	...	...	...	...	...
Historical Greek and Latin Grammar .....	...	...	...	...	...	...	721	3	5	...	...	...
LATIN												
Catullus, Pliny, Tacitus .....	321	2	12	...	...	...	...	...	...	...	...	...
Elementary Latin .....	...	...	...	401	5	29	...	...	...	...	...	...
Elementary Latin and Caesar .....	...	...	...	...	...	...	402	5	16	...	...	...
Caesar .....	...	...	...	404	5	13	...	...	...	403	5	10
Cicero, Orations .....	...	...	...	...	...	...	...	...	...	...	...	...
Vergil .....	...	...	...	406	5	27	405	5	12	...	...	...
Cicero, Horace, Ovid .....	...	...	...	...	...	...	407	5	20	...	...	...
Horace, Livy, Gellius .....	...	...	...	...	...	...	...	...	...	408	5	18
Latin Comedy .....	...	...	...	...	...	...	...	...	...	410	3	51
Medical Latin .....	...	...	...	501	3	8	...	...	...	...	...	...
Catullus, Pliny, Tacitus .....	...	...	...	...	...	...	...	...	...	503	3	6
Advanced Readings in Latin .....	...	...	...	...	...	...	504	3	11	...	...	...
Advanced Readings in Latin .....	...	...	...	...	...	...	...	...	...	506	3	26
Comparative Literature .....	...	...	...	507	3	13	...	...	...	...	...	...
Roman Private Life .....	...	...	...	...	...	...	508	3	22	...	...	...
Roman Art and Archaeology .....	...	...	...	602	3	10	...	...	...	...	...	...
Latin Satire .....	...	...	...	...	...	...	609	3	7	...	...	...
Historical Latin Grammar: Inflections .....	...	...	...	...	...	...	611	3	5	...	...	...
Roman Public Life .....	...	...	...	...	...	...	612	3	10	...	...	...
Latin Prose Composition; 1st course .....	...	...	...	...	...	...	...	...	...	613	3	5
Latin Prose Composition; 2nd course .....	...	...	...	...	...	...	...	...	...	...	...	...
Proseminary I .....	...	...	...	...	...	...	615	3	5	...	...	...
Proseminary II .....	...	...	...	...	...	...	...	...	...	616	3	8
Roman Tragedy .....	...	...	...	621	3	9	...	...	...	...	...	...
Roman Epic .....	...	...	...	...	...	...	622	3	6	...	...	...



Advanced Reading in the Post-Augustan Epic	625	3	13	626	3	8	627	3	5	628	3	5
Advanced Prose Composition	629	3	17	802	3	9	803	3	5	804	3	5
Paleography	802	3	9	810	3	10	811	3	10	812	3	10
Vulgar Latin	813	3	11	814	3	11	815	3	11	816	3	11
History of Literary Tradition	817	3	12	818	3	12	819	3	12	820	3	12
Seminary in Latin Epic	821	3	13	822	3	13	823	3	13	824	3	13
Seminary in the Post-Augustan Epic	825	3	14	826	3	14	827	3	14	828	3	14
Seminary in Classical Archaeology	829	3	15	830	3	15	831	3	15	832	3	15
DAIRYING												
Principles of Dairying	401	5	35	401	5	50	401	5	24	401	5	24
Testing of Milk Products	403	5	6	403	5	7	403	5	9	403	5	9
Buttermaking	405	5	7	405	5	7	405	5	7	405	5	7
Soft Cheese Making	407	3	5	407	3	5	407	3	4	407	3	4
Dairy Mechanics	411	3	5	411	3	5	411	3	5	411	3	5
City Milk Inspection	412	3	32	412	3	32	412	3	32	412	3	32
Management of Dairy Plants	605	3	6	605	3	6	605	3	6	605	3	6
City Milk Supply	607	5	4	607	5	4	607	5	4	607	5	4
Milk Condensing	609	3	5	609	3	5	609	3	5	609	3	5
Ice Cream Making	610	5	4	610	5	4	610	5	4	610	5	4
Special Problems	701	3-15	6	701	3-15	6	701	3-15	6	701	3-15	2
OPERATIVE DENTISTRY												
Dental Anatomy	401	2	55	401	2	55	401	2	55	401	2	55
Dental Anatomy	402	2	45	402	2	45	402	2	45	402	2	45
Dental Anatomy and Operative Technic	403	3	4	403	3	4	403	3	4	403	3	4
Operative Technic	405	3	42	405	3	42	405	3	42	405	3	42
Operative Technic	406	3	46	406	3	46	406	3	46	406	3	46
Principles and Practice of Operative Dentistry	409	5	71	409	5	71	409	5	71	409	5	71
Principles and Practice of Operative Dentistry	410	5	74	410	5	74	410	5	74	410	5	74
Principles and Practice of Operative Dentistry	411	5	74	411	5	74	411	5	74	411	5	74
Principles and Practice of Operative Dentistry	413	4	62	413	4	62	413	4	62	413	4	62
Principles and Practice of Operative Dentistry	414	4	57	414	4	57	414	4	57	414	4	57
Principles and Practice of Operative Dentistry	415	4	63	415	4	63	415	4	63	415	4	63
Dental Hygiene: Immunology	416	1	44	416	1	44	416	1	44	416	1	44
Oral Hygiene	417	3	74	417	3	74	417	3	74	417	3	74
Oral Hygiene	418	3	78	418	3	78	418	3	78	418	3	78
Dental Medicine	421	1	72	421	1	72	421	1	72	421	1	72
Dental Medicine	422	1	77	422	1	77	422	1	77	422	1	77
Dental Medicine	423	2	74	423	2	74	423	2	74	423	2	74
Dental Medicine	425	2	62	425	2	62	425	2	62	425	2	62
Dental Medicine	426	2	57	426	2	57	426	2	57	426	2	57
Dental Medicine	427	2	60	427	2	60	427	2	60	427	2	60
Principles and Practice of Exodontia and X-Ray	428	2	70	428	2	70	428	2	70	428	2	70
Principles and Practice of Exodontia and X-Ray	429	2	74	429	2	74	429	2	74	429	2	74
Principles and Practice of Exodontia and X-Ray	430	2	72	430	2	72	430	2	72	430	2	72
Orthodontia Principles and Technic	431	2	72	431	2	72	431	2	72	431	2	72
Orthodontia	433	2	61	433	2	61	433	2	61	433	2	61
Orthodontia Principles and Practice	434	2	56	434	2	56	434	2	56	434	2	56
Orthodontia Principles and Practice	435	2	60	435	2	60	435	2	60	435	2	60

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Anesthetics .....	...	...	...	437	2	61	...	...	...	...	...	...
Anesthetics .....	...	...	...	...	...	...	438	2	56	...	...	...
Anesthetics .....	...	...	...	...	...	...	...	...	...	439	2	63
Ethics, Economics, History and Jurisprudence	...	...	...	441	1	61	...	...	...	...	...	...
Ethics, Economics, History and Jurisprudence	...	...	...	...	...	...	442	1	55	...	...	...
Ethics, Economics, History and Jurisprudence	...	...	...	...	...	...	...	...	...	443	1	61
Oral Surgery .....	...	...	...	445	2	60	...	...	...	...	...	...
Oral Surgery .....	...	...	...	...	...	...	446	2	54	...	...	...
Oral Surgery .....	...	...	...	...	...	...	...	...	...	447	2	59
PROSTHESIS												
Prosthetic Dentistry Technic .....	...	...	...	401	4	48	...	...	...	...	...	...
Prosthetic Dentistry Technic .....	...	...	...	...	...	...	402	4	45	...	...	...
Prosthetic Dentistry Technic .....	...	...	...	...	...	...	...	...	...	403	4	44
Prosthetic Dentistry Technic .....	...	...	...	405	3	47	...	...	...	...	...	...
Prosthetic Dentistry Technic .....	...	...	...	...	...	...	406	3	45	...	...	...
Prosthetic Dentistry Technic .....	...	...	...	...	...	...	...	...	...	407	3	54
Prosthetic Dentistry Principles and Practice..	...	...	...	409	3	72	...	...	...	...	...	...
Prosthetic Dentistry Principles and Practice..	...	...	...	...	...	...	410	3	72	...	...	...
Prosthetic Dentistry Principles and Practice..	...	...	...	...	...	...	...	...	...	411	3	66
Prosthetic Dentistry Practice .....	...	...	...	413	2	62	...	...	...	...	...	...
Prosthetic Dentistry Practice .....	...	...	...	...	...	...	414	2	57	...	...	...
Prosthetic Dentistry Practice .....	...	...	...	...	...	...	...	...	...	415	2	60
Dental Metallurgy .....	...	...	...	...	...	...	...	...	...	419	2	43
Crown and Bridge Technic .....	...	...	...	421	3	47	...	...	...	...	...	...
Crown and Bridge Technic .....	...	...	...	...	...	...	422	2	46	...	...	...
Crown and Bridge Technic .....	...	...	...	...	...	...	...	...	...	423	3	60
Crown and Bridge Technic .....	...	...	...	425	2	69	...	...	...	...	...	...
Crown and Bridge Technic .....	...	...	...	...	...	...	426	2	71	...	...	...
Crown and Bridge Technic .....	...	...	...	...	...	...	...	...	...	427	2	69
Crown and Bridge Technic .....	...	...	...	429	2	61	...	...	...	...	...	...
Crown and Bridge Technic and Practice.....	...	...	...	...	...	...	430	2	56	...	...	...
Crown and Bridge Technic and Practice.....	...	...	...	...	...	...	...	...	...	431	2	59
Crown and Bridge Technic and Practice.....	...	...	...	...	...	...	...	...	...	...	...	...
DISPENSARY CLINICS												
Dispensary Clinics .....	...	...	...	601	...	56	602	...	60	603	...	45
Dispensary Clinics .....	...	...	...	...	...	...	...	...	...	601	...	62
ECONOMICS												
Principles of Economics .....	401	5	81	401	5	393	401	5	308	401	5	230
Principles of Economics .....	402	5	56	402	5	147	402	5	349	402	5	276



Principles of Economics for Engineers.....	...	...	...	403	3	70	403	3	40	...	...	...
Principles of Economics for Engineers.....	...	...	...	...	...	...	404	3	60	404	3	28
Principles of Economics for Agri. Students..	...	...	...	405	5	41	405	5	40	...	...	...
Principles of Economics for Students in Home Economics .....	...	...	...	407	5	38	407	5	37	407	5	46
American Economic History .....	408	5	15	...	...	...	...	...	...	408	5	17
Outlines of Public Finance.....	...	...	...	509	5	33	509	5	36	509	5	30
Introduction to the Study of Labor Problems..	510	3	13	510	3	40	510	3	33	510	3	44
Economic Statistics .....	522	3	22	522	3	84	522	3	73	522	3	92
Principles and Problems of Economics.....	...	...	...	601	3	20	...	...	...	...	...	...
Principles and Problems of Economics.....	...	...	...	...	...	...	602	3	13	...	...	...
Principles and Problems of Economics.....	...	...	...	...	...	...	...	...	...	603	3	6
Financial History of United States.....	...	...	...	607	3	5	...	...	...	...	...	...
Financial History of United States.....	...	...	...	...	...	...	608	3	4	...	...	...
Money and Banking .....	610	5	23	610	5	115	610	5	120	610	5	91
Advanced Money .....	...	...	...	611	2	12	...	...	...	...	...	...
Advanced Banking .....	...	...	...	...	...	...	612	3	10	...	...	...
Corporation Economics .....	...	...	...	616	5	16	...	...	...	...	...	...
Transportation Economics .....	618	5	29	618	5	81	618	5	55	618	5	41
Principles of Insurance .....	...	...	...	624	3	21	...	...	...	...	...	...
Economic Forecasting .....	...	...	...	...	...	...	625	2	7	...	...	...
Economic Forecasting .....	...	...	...	...	...	...	...	...	...	626	2	6
Public Finance .....	...	...	...	631	3	45	...	...	...	...	...	...
Public Finance .....	...	...	...	...	...	...	632	3	43	...	...	...
Public Finance .....	...	...	...	...	...	...	...	...	...	633	3	23
International Finance .....	...	...	...	...	...	...	635	3	6	...	...	...
Industrial Relations .....	...	...	...	637	3	47	...	...	...	638	3	23
Labor Legislation .....	...	...	...	...	...	...	638	3	39	...	...	...
Social Insurance .....	...	...	...	...	...	...	...	...	...	639	3	42
Women in Industry .....	643	4	12	643	4	8	...	...	...	...	...	...
The Household .....	...	...	...	644	3	5	...	...	...	644	3	31
Economics of Public Service Industries.....	...	...	...	648	5	12	...	...	...	...	...	...
International Commercial Policies.....	...	...	...	...	...	...	...	...	...	651	3	30
Prices and the Economic Cycle.....	...	...	...	655	2	10	...	...	...	...	...	...
Wages and Profits .....	...	...	...	656	3	17	...	...	...	...	...	...
Socialism .....	657	3	16	...	...	...	...	...	...	657	3	26
Economic Problems of Population.....	...	...	...	658	2	7	...	...	...	...	...	...
Economic Problems of Population.....	...	...	...	...	...	...	659	2	9	...	...	...
Population .....	...	...	...	...	...	...	...	...	...	660	2	9
Reading Course .....	...	...	...	...	...	...	700	3	1	...	...	...
History of Economic Thought.....	801	3	12	801	3	13	...	...	...	...	...	...
History of Economic Thought.....	...	...	...	...	...	...	802	3	10	...	...	...
History of Economic Thought.....	...	...	...	...	...	...	...	...	...	803	3	10
Economic History of the United States.....	...	...	...	804	3	6	...	...	...	...	...	...
Economic History of the United States.....	...	...	...	...	...	...	805	3	6	...	...	...
Economic History of the United States.....	...	...	...	...	...	...	...	...	...	806	3	5
Statistical Analysis .....	...	...	...	807	2	17	...	...	...	...	...	...
Statistical Analysis .....	...	...	...	...	...	...	808	2	12	...	...	...
Statistical Analysis .....	...	...	...	...	...	...	...	...	...	809	2	12
The Economic History of Western Europe...	812	2	10	812	2	5	...	...	...	...	...	...
The Economic History of Western Europe...	...	...	...	...	...	...	813	2	7	...	...	...
The Economic History of Western Europe...	...	...	...	...	...	...	...	...	...	814	2	8
Costs and Returns .....	...	...	...	...	...	...	...	...	...	815	3	2

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Modern Economic Theories .....	...	...	...	...	...	...	...	...	...	818	3	7
French and German Economics.....	...	...	...	819	2	5	...	...	...	...	...	...
French and German Economics.....	...	...	...	...	...	...	820	2	3	...	...	...
French and German Economics.....	...	...	...	...	...	...	...	...	...	821	2	2
Seminary in Economics and Statistics.....	...	...	...	822	2	17	...	...	...	...	...	...
Seminary in Economics and Statistics.....	...	...	...	...	...	...	823	2	17	...	...	...
Seminary in Economics and Statistics.....	...	...	...	...	...	...	...	...	...	824	2	8
Economic Research .....	900	3-10	5	900	3-10	9	900	3-10	18	900	3-10	8
ELECTRICAL ENGINEERING												
Direct Current Equipment .....	601	5	3	601	5	24	...	...	...	601	5	26
Alternating Current Circuits and Equipment.....	605	5	4	605	5	25	605	5	25	...	...	...
Medium and High Frequency Currents.....	...	...	...	...	...	...	611	4	28	611	4	30
Applications, Control and Problems.....	...	...	...	...	...	...	...	...	...	620	3	49
Electrical Engineering .....	...	...	...	...	...	...	630	5	12	...	...	...
Electrical Equipment .....	...	...	...	...	...	...	...	...	...	635	3	10
Electrical Engineering .....	...	...	...	...	...	...	640	2	26	...	...	...
Electrical Engineering .....	...	...	...	...	...	...	...	...	...	641	5	24
Inspection Trip West .....	...	...	...	...	...	...	...	...	...	650	...	40
Alternating Current Equipment .....	...	...	...	701	3	28	701	3	21	...	...	...
Alternating Current Equipment .....	...	...	...	702	3	25	702	3	25	...	...	...
Alternating Current Laboratory .....	...	...	...	705	4	28	705	4	21	...	...	...
Alternating Current Laboratory .....	...	...	...	706	4	22	706	4	26	...	...	...
Electrical Railways .....	...	...	...	710	4	12	...	...	...	...	...	...
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*Phonetics	...	...	...	655	3	13	...	...	...	...	...	...
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England since 1603	...	...	...	...	...	...	422	5	50	...	...	...
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Age of the Renaissance (1250-1527)	...	...	...	...	...	...	607	3	19	...	...	...
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Constitutional History of England to 1485	611	3	27	611	3	26	...	...	...	...	...	...
Constitutional History of England since 1485	...	...	...	...	...	...	612	3	25	...	...	...
England in the Tudor Period	613	3	13	613	3	17	...	...	...	...	...	...
England in the Stuart Period	...	...	...	...	...	...	614	3	19	...	...	...
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History of the Christian Church to 1400	...	...	...	620	3	19	...	...	...	...	...	...
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Expansion of Europe to 1815	...	...	...	...	...	...	622	3	35	...	...	...
Expansion of Europe from 1815 to Present	623	3	71	...	...	...	...	...	...	623	3	42
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Recent and Contemporary European History (1919-1926)	...	...	...	...	...	...	...	...	...	628	5	31
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Constitutional History since 1837	632	3	30	...	...	...	...	...	...	632	3	17
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
American Diplomacy to the Close of the Civil War .....	636	3	47	...	...	...	635	3	16	636	3	21
American Diplomacy since the Civil War .....	637	3	86	637	3	76	...	...	...	...	...	...
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Recent History of U. S. 1900-1926 .....	...	...	...	...	...	...	...	...	...	639	5	45
The Influence of Racial Groups on U. S. History .....	640	5	25	...	...	...	...	...	...	640	5	22
The Pioneer in American History to 1812 .....	643	5	36	...	...	...	643	5	22	...	...	...
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The Colonization of North America .....	...	...	...	645	3	22	...	...	...	...	...	...
Colonial Latin America .....	...	...	...	...	...	...	646	5	32	...	...	...
The Latin-American Republics .....	...	...	...	...	...	...	...	...	...	647	5	42
History of Canada .....	...	...	...	655	5	40	...	...	...	...	...	...
Greek History .....	...	...	...	...	...	...	656	5	28	...	...	...
Roman History .....	...	...	...	660	3	7	...	...	...	...	...	...
History of Japan .....	...	...	...	...	...	...	661	3	12	...	...	...
Government and Institutions of Modern Japan .....	...	...	...	...	...	...	...	...	...	662	3	12
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Seminary in European History .....	819	3	17	819	3	13	...	...	...	...	...	...
Seminary in American History .....	...	...	...	...	...	...	820	3	8	...	...	...
Seminary in American History .....	...	...	...	...	...	...	...	...	...	821	3	9
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Comparative Education ....	617	2	41	...	...	...	...	...	...	...	...	...
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Elementary Dietetics ....	...	...	...	...	...	...	425	2	41	...	...	...
Diet in Disease ....	...	...	...	426	1	44	...	...	...	...	...	...
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House Furnishing ....	...	...	...	512	5	23	512	5	16	512	5	28
Elements of Home Making ....	...	...	...	...	...	...	...	...	...	518	5	46
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Foods ....	614	5	15	614	5	6	614	5	22	...	...	...
Experimental Work in Food Preparation ....	615	5	8	...	...	...	615	5	6	...	...	...
Household Management ....	...	...	...	617	5	13	617	5	20	617	5	23
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Purchase of Food for Institutions ....	...	...	...	630	5	8	630	5	11	...	...	...
Institution Management ....	...	...	...	631	5	8	631	5	11	...	...	...
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
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<b>HORTICULTURE &amp; FORESTRY</b>												
Principles of Horticulture	...	...	...	401	5	32	...	...	...	...	...	...
Small Fruits and Grapes	...	...	...	...	...	...	...	...	...	402	5	12
Pomology	...	...	...	403	5	7	...	...	...	403	5	7
Pomology	...	...	...	...	...	...	404	5	7	...	...	...
Farm Horticulture	...	...	...	405	5	26	405	5	28	405	5	43
Commercial Vegetable Gardening	...	...	...	421	5	5	...	...	...	...	...	...
Commercial Vegetable Gardening	...	...	...	...	...	...	...	...	...	422	5	8
Horticultural Products	...	...	...	423	3	3	...	...	...	...	...	...
Greenhouse Construction, Equipment and Management	...	...	...	...	...	...	424	3	8	...	...	...
Vegetable Forcing	...	...	...	...	...	...	...	...	...	426	3	2
Special Truck Crops	...	...	...	...	...	...	428	3	9	...	...	...
Amateur Floriculture	...	...	...	...	...	...	441	3	7	...	...	...
Commercial Floriculture	...	...	...	442	5	10	...	...	...	...	...	...
Commercial Floriculture	...	...	...	...	...	...	443	5	10	...	...	...
Garden Flowers	...	...	...	444	5	8	...	...	...	...	...	...
Garden Flowers	...	...	...	...	...	...	...	...	...	445	5	20
The Flower Shop	...	...	...	...	...	...	...	...	...	446	3	10
The Nursery	...	...	...	448	5	11	...	...	...	...	...	...
The Nursery	...	...	...	...	...	...	449	3	9	...	...	...
General Forestry	...	...	...	...	...	...	501	5	18	...	...	...
Farm Woodlot	...	...	...	...	...	...	...	...	...	502	5	8
Lumber	...	...	...	...	...	...	503	5	2	...	...	...
Development of Forestry & Conservation	...	...	...	...	...	...	506	5	2	...	...	...
Timber Physics	...	...	...	...	...	...	...	...	...	507	5	48
Horticultural Plant Breeding	...	...	...	...	...	...	601	3	3	...	...	...
Experimental Horticulture	...	...	...	602	3	8	...	...	...	...	...	...
Experimental Horticulture	...	...	...	...	...	...	603	3	5	...	...	...
Systematic Pomology	...	...	...	604	5	3	...	...	...	...	...	...
The Literature of Horticulture	...	...	...	...	...	...	605	5	4	...	...	...
Minor Investigations	...	...	...	701	3-15	12	701	3-15	28	701	3-15	21
Minor Investigations in Forestry	...	...	...	...	...	...	701	5	2	...	...	...
Research	...	...	...	...	...	...	...	...	...	801	5-10	5
<b>INDUSTRIAL ARTS-EDUCATION</b>												
General Industrial Arts Laboratory	400	5	21	400	5	26	...	...	...	...	...	...
Wood and Cabinet Work	...	...	...	...	...	...	409	5	21	...	...	...
Wood and Cabinet Work	411	5	21	...	...	...	...	...	...	411	5	22



Wood and Cabinet Work.....	413	5	23	...	...	...	...	...	...	...	...	...
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Advanced Project Design.....	...	...	...	...	...	...	...	...	...	452	3	23
Shopwork Related to the Farm.....	510	5	13	...	...	...	510	5	19	...	...	...
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General Industrial Arts Curriculum in the Junior High School.....	608	3	19	608	3	13	...	...	...	...	...	...
Occupational Studies in the Junior and Senior High Schools.....	...	...	...	...	...	...	...	...	...	610	3	9
The Teaching and Supervision of Practical Arts in the Elementary School.....	623	3	11	...	...	...	...	...	...	...	...	...
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Minor Problems in Industrial Arts-Education.....	652	1	32	...	...	...	...	...	...	652	1	9
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Seminary.....	...	...	...	...	...	...	802	2	4	...	...	...
Seminary.....	...	...	...	...	...	...	...	...	...	803	2	6
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INDUSTRIAL ENGINEERING												
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Metal Bench Work.....	...	...	...	407	2	62	407	2	16	407	2	24
Millwrighting.....	...	...	...	408	2	10	408	2	66	408	2	16
Patternmaking.....	411	3	67	411	3	42	411	3	55	...	...	...
Advanced Patternmaking.....	...	...	...	412	2	3	412	2	1	...	...	...
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Forging and Sheet Metal Work.....	416	3	38	416	3	29	416	3	4	416	3	23
Advanced Heat Treating.....	...	...	...	417	1	7	417	1	9	...	...	...
Elementary Machine Work.....	419	3	18	419	3	70	419	3	52	419	3	48
Advanced Machine Work.....	421	3	18	421	3	27	421	3	53	421	3	41
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Work Routing.....	...	...	...	...	...	...	702	4	36	...	...	...
Standardization and Simplification.....	...	...	...	...	...	...	...	...	...	703	3	41
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Inspection and Waste Elimination.....	...	...	...	...	...	...	...	...	...	705	2	39
Industrial Engineering.....	...	...	...	...	...	...	712	3	45	712	3	50

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Tools, Jigs and Fixtures .....	...	...	...	751	3	32	...	...	...	...	...	...
Work Routing Laboratory .....	...	...	...	...	...	...	752	3	36	...	...	...
Thesis .....	...	...	...	754	3-6	17	754	3-6	22	754	3-6	30
JOURNALISM												
News-Collecting and News-Writing .....	401	5	14	401	5	71	401	5	32	401	5	28
News-Collecting and News-Writing .....	...	...	...	402	5	12	402	5	48	402	5	27
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Agricultural Journalism .....	...	...	...	...	...	...	408	3	10	...	...	...
*Copyreading .....	501	3	3	501	3	24	...	...	...	501	3	45
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Newspaper Ethics and Principles .....	...	...	...	513	3	36	...	...	...	513	3	28
Newspaper Law .....	...	...	...	514	3	20	...	...	...	514	3	21
Newspaper History and Comparative Journalism .....	...	...	...	...	...	...	...	...	...	...	...	...
Newspaper Organization .....	...	...	...	518	5	30	517	5	51	...	...	...
The Community Paper, Weekly and Daily .....	...	...	...	...	...	...	...	...	...	518	5	29
The Newspaper Business Office .....	...	...	...	526	3	7	525	3	15	...	...	...
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Newspaper Problems .....	608	2	7	...	...	...	...	...	...	607	2	20
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*Agricultural Editing .....	...	...	...	...	...	...	...	...	...	810	2	2
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Sales .....	...	...	4	61	...	...	...	...	...	...
Legal Bibliography .....	...	...	1	30	...	...	...	...	...	...
Constitutional Law .....	...	...	4	56	...	4	48	...	...	...
Practice I .....	...	...	3	36	...	3	17	...	...	...
Office Practice .....	...	...	...	...	...	2	41	...	...	...
Equity III .....	...	...	3	46	...	...	...	...	...	...
Legal Method .....	...	...	3	13	...	...	...	...	...	...
Future Interests .....	...	...	4	19	...	...	...	...	...	...
Partnership .....	...	...	3	42	...	...	...	...	...	...
Suretyship .....	...	...	...	...	...	...	54	...	...	...
Quasi Contracts .....	...	...	3	33	...	...	...	...	...	...
Mortgages and Suretyship .....	...	...	...	...	...	3	40	...	...	...
Public Utilities .....	...	...	...	...	...	4	28	...	...	...
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Sub-Freshman Mathematics .....	...	...	400	3	103	...	...	...	...	...
Solid Geometry .....	...	...	401	5	75	401	5	32	401	5
Mathematics for Students of Agriculture .....	...	...	407	5	17	407	5	25	407	5
College Algebra .....	...	...	421	5	283	421	5	177	...	...
Plane Trigonometry .....	...	...	...	...	...	422	5	90	422	5
Analytic Geometry .....	...	...	...	...	...	...	...	...	423	5
Mathematics of Finance .....	...	...	429	5	43	428	5	62	...	...
Mathematics of Insurance .....	...	...	...	...	...	...	...	...	430	5
Plane Trigonometry .....	...	...	431	5	487	431	5	194	...	...
College Algebra .....	432	5	38	...	...	432	5	358	432	5
Analytic Geometry .....	433	5	28	433	5	139	...	...	433	5
Intro. to Mathematical Statistics .....	...	...	...	...	...	435	5	22	...	...
Calculus .....	...	...	441	5	310	441	5	147	...	...
Calculus .....	442	5	9	...	...	442	5	265	442	5
Calculus .....	...	...	443	5	85	...	...	...	443	5
Advanced Calculus .....	601	5	30	601	5	32	...	...	...	...
Intro. to the Theory of Functions of a Complex Variable .....	607	5	17	...	...	607	5	12	...	...
Differential Equations .....	...	...	...	...	...	611	5	31	...	...
Advanced Euclidian Geometry .....	...	...	...	...	...	621	5	16	...	...
Projective Geometry .....	623	5	14	...	...	...	...	...	623	5
Plane and Solid Analytic Geometry .....	...	...	625	5	6	...	...	...	...	...
Elementary Theory of Equations .....	...	...	641	5	19	...	...	...	...	...
Vector Analysis .....	...	...	...	...	...	...	...	...	661	5
Probability .....	...	...	691	5	6	...	...	...	...	...
Finite Differences .....	...	...	...	...	...	692	5	6	...	...
Seminary in Mathematics .....	800	3-5	8	800	3-5	3	800	3-5	2	800
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Theory of Functions of a Complex Variable...	...	...	...	...	...	...	...	...	...	806	5	10
Infinite Series and Products...	...	...	...	809	5	10	...	...	...	...	...	...
Point-Sets...	...	...	...	...	...	...	812	5	6	...	...	...
Problems in Analysis...	...	...	...	...	...	...	...	...	...	814	5	3
Differential Geometry...	...	...	...	...	...	...	...	...	...	827	5	6
Theory of Numbers...	...	...	...	850	5	14	...	...	...	...	...	...
Continuous Groups...	854	5	...	...	...	...	...	...	...	...	...	...
Algebraic Numbers...	...	...	...	...	...	...	855	5	5	...	...	...
Tensor Analysis...	862	5	13	...	...	...	...	...	...	...	...	...
MECHANICAL ENGINEERING												
Heat-Power Engineering...	...	...	...	...	...	...	...	...	...	409	3	70
Materials of Engineering...	...	...	...	...	...	...	...	...	...	427	3	78
Practical Experience in a Mechanical Engineering Industry...	...	...	...	439	5	22	...	...	...	...	...	...
Heat Engines...	...	...	...	507	4	31	507	4	24	...	...	...
Heat Engines...	...	...	...	509	3	45	...	...	...	...	...	...
Machine Design...	...	...	...	513	5	24	...	...	...	...	...	...
Machine Design...	...	...	...	...	...	...	514	4	44	...	...	...
Machine Design...	...	...	...	...	...	...	...	...	...	515	5	42
Mechanical Engineering Laboratory...	...	...	...	531	2	42	...	...	...	...	...	...
Mechanical Engineering Laboratory...	...	...	...	...	...	...	532	2	44	...	...	...
Mechanical Engineering Laboratory...	...	...	...	...	...	...	...	...	...	533	2	40
Heating and Ventilating...	...	...	...	551	2	31	...	...	...	...	...	...
Mechanical Engineering Laboratory...	...	...	...	...	...	...	572	3	11	...	...	...
Mechanical Engineering Laboratory...	...	...	...	573	5	35	...	...	...	...	...	...
Mechanical Engineering Laboratory...	...	...	...	...	...	...	574	3	32	...	...	...
Mechanical Engineering Laboratory...	...	...	...	...	...	...	...	...	...	575	3	24
Heating and Ventilating...	...	...	...	...	...	...	605	4	23	606	4	31
Steam Engineering...	...	...	...	607	5	35	...	...	...	...	...	...
Steam Engineering...	...	...	...	...	...	...	608	5	27	...	...	...
Steam Engineering...	...	...	...	...	...	...	...	...	...	609	3	25
Mechanism...	...	...	...	614	4	34	...	...	...	...	...	...
Mechanism Drawing...	...	...	...	...	...	...	616	2	25	...	...	...
Mechanical Engineering Laboratory...	...	...	...	617	2	25	...	...	...	...	...	...
Gas Engines and Producers...	...	...	...	...	...	...	...	...	...	625	3	27
Inspection Trip to the West...	...	...	...	...	...	...	...	...	...	630	...	26
A. S. M. E. Student-Branch Meetings...	...	...	...	651	1/2	33	...	...	...	...	...	...
A. S. M. E. Student-Branch Meetings...	...	...	...	...	...	...	662	1/2	27	...	...	...
A. S. M. E. Student-Branch Meetings...	...	...	...	...	...	...	...	...	...	663	1/2	27





COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
<b>METALLURGY</b>												
Elementary Fuel Testing.....	...	...	...	401	2	26	...	...	...	...	...	...
Metallurgical Analysis.....	...	...	...	...	...	...	405	5	14	...	...	...
Metal Analysis.....	...	...	...	...	...	...	...	...	...	406	5	19
Fire Assaying.....	...	...	...	...	...	...	410	3	3	410	3	22
Metallurgical Analysis.....	...	...	...	451	3	43	451	3	4	...	...	...
Ceramic Analysis.....	...	...	...	...	...	...	452	4	26	...	...	...
Ceramic Analysis.....	...	...	...	...	...	...	...	...	...	453	4	28
Metallurgical Analysis.....	...	...	...	...	...	...	454	4	3	...	...	...
Iron and Steel Metallurgy.....	...	...	...	605	3	18	...	...	...	...	...	...
Principles of Metallography.....	...	...	...	606	2	20	...	...	...	...	...	...
Inspection of Commercial Metals.....	...	...	...	...	...	...	...	...	...	607	3	8
Non-Ferrous Metallurgy.....	...	...	...	...	...	...	...	...	...	610	5	20
Principles of Ore Dressing.....	...	...	...	620	5	21	...	...	...	...	...	...
Inspection Trip.....	...	...	...	...	...	...	...	...	...	645	...	22
Pyrometry.....	...	...	...	650	2	25	650	2	20	...	...	...
Fuels.....	...	...	...	651	3	77	651	3	47	...	...	...
Gas Testing and Calorimetry.....	...	...	...	652	1	38	...	...	...	...	...	...
General Metallurgy.....	...	...	...	...	...	...	...	...	...	665	5	35
Advanced Metallography.....	...	...	...	...	...	...	701	4	19	...	...	...
Metallurgical Construction.....	...	...	...	...	...	...	705	4	8	...	...	...
Metallurgical Construction.....	...	...	...	...	...	...	...	...	...	706	4	8
Metallurgical Investigations.....	...	...	...	710	3	6	710	3	11	710	3	14
Metallurgical Investigations.....	...	...	...	711	3 or 5	3	711	3 or 5	2	711	3 or 5	10
Ore Dressing.....	...	...	...	...	...	...	720	3	17	...	...	...
Thesis.....	...	...	...	...	...	...	...	...	...	725	5 or 6	8
<b>MILITARY SCIENCE</b>												
Basic Infantry.....	...	...	...	401	1	1303	402	1	1081	403	1	927
Basic Infantry.....	...	...	...	404	1	744	405	1	674	406	1	601
Basic Field Artillery.....	...	...	...	421	1	721	422	1	656	423	1	578
Basic Field Artillery.....	...	...	...	424	1	561	425	1	472	426	1	418
Basic Signal Corps.....	...	...	...	444	1	16	445	1	36	446	1	45
Advanced Infantry.....	...	...	...	507	3	49	508	3	40	509	3	39
Advanced Infantry.....	...	...	...	510	3	45	511	3	55	512	3	49
Advanced Field Artillery.....	...	...	...	527	3	24	528	3	29	529	3	55
Advanced Field Artillery.....	...	...	...	530	3	30	531	3	36	532	3	68
Advanced Signal Corps.....	...	...	...	547	3	5	...	...	...	...	...	...
Advanced Signal Corps.....	...	...	...	...	...	...	551	3	9	...	...	...
Advanced Signal Corps.....	...	...	...	...	...	...	...	...	...	552	3	16





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	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Students in All Sections Total No. of
Conducting .....	459	2	29	...	...	...	459	2	42	...	...	...
Harmony .....	460	3	5	460	3	24	...	...	...	...	...	...
Harmony .....	461	3	8	...	...	...	461	3	31	...	...	...
Harmony .....	...	...	...	...	...	...	...	...	...	462	3	34
Advanced Harmony .....	...	...	...	463	3	29	...	...	...	...	...	...
Harmonic Analysis .....	465	3	10	...	...	...	465	3	21	...	...	...
Form .....	...	...	16	...	...	...	...	...	...	468	3	27
Elementary Sight Singing and Ear Training..	476	2	16	476	2	45	...	...	...	...	...	...
Elementary Sight Singing and Ear Training..	478	2	12	...	...	...	478	2	40	...	...	...
Elementary Sight Singing and Ear Training..	...	...	...	...	...	...	...	...	...	479	2	35
Elementary Sight Singing and Ear Training..	...	...	...	480	4	17	...	...	...	...	...	...
Intermediate Sight Singing and Ear Training	...	...	...	482	3	28	482	3	16	...	...	...
Intermediate Sight Singing and Ear Training	...	...	...	...	...	...	483	3	27	483	3	14
Advanced Sight Singing and Ear Training...	...	...	...	485	1	19	...	...	...	...	...	...
Advanced Sight Singing and Ear Training...	...	...	...	...	...	...	486	1	18	...	...	...
Applied Music .....	501	2	33	501	2	55	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	502	2	65	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	503	2	59
Applied Music .....	504	1	15	504	1	36	...	...	...	...	...	...
Applied Music .....	505	1	1	...	...	...	505	1	30	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	506	1	33
Applied Music .....	...	...	...	507	1	13	...	...	...	...	...	...
Applied Music .....	508	1	11	...	...	...	508	1	34	...	...	...
Applied Music .....	509	1	2	...	...	...	...	...	...	509	1	35
Applied Music .....	510	1	8	510	1	19	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	511	1	21	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	512	1	14
Applied Music .....	...	...	...	520	1	8	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	521	1	6	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	522	1	9
Applied Music .....	...	...	...	525	1	3	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	526	1	7	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	527	1	9
The Romanticists .....	...	...	...	601	4	24	...	...	...	...	...	...
The Opera .....	...	...	...	602	4	4	...	...	...	...	...	...
Modern Music .....	603	4	38	...	...	...	603	4	27	...	...	...
History of Choral Music .....	...	...	...	...	...	...	...	...	...	605	3	15
Music in the Junior High School .....	610	2	44	610	2	16	...	...	...	...	...	...
High School Music .....	611	2	35	...	...	...	...	...	...	611	2	17
Supervision of Music in Elementary Schools..	612	3	17	612	3	11	...	...	...	...	...	...

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Supervision of Music in Secondary Schools.....	...	...	...	614	1	8	...	...	613	3	8
Methods of Class Instruction in Piano.....	...	...	...	...	...	...	615	1	...	...	...
Methods of Class Instruction in Piano.....	...	...	...	...	...	...	...	7	...	...	...
Methods of Class Instruction in Piano.....	...	...	...	...	...	...	...	...	616	1	7
Methods of Class Instruction in Voice.....	...	...	...	617	1	2	...	...	...	...	...
Methods of Class Instruction in Voice.....	...	...	...	...	...	...	618	1	3	...	...
Methods of Class Instruction in Voice.....	...	...	...	...	...	...	...	...	619	1	3
Instrumentation.....	630	3	9	630	3	15	...	...	...	...	...
Instrumentation.....	...	...	...	...	...	...	632	3	19	...	...
Instrumentation.....	...	...	...	...	...	...	...	...	635	3	3
Organization and Conducting of the School	...	...	...	...	...	...	...	...	...	...	...
Band and Orchestra.....	...	...	...	...	...	...	642	2	8	...	...
Minor Problems.....	...	...	...	650	5	3	...	...	650	5	4
University Chorus.....	A	0	76	A	0	225	...	175	A	1	175
University Orchestra.....	...	...	...	B	0	36	B	1	53	B	1
Military Bands.....	...	...	...	C	0	110	C	1	139	C	1
Concert Bands.....	...	...	...	D	0	49	D	1	75	D	1
Glee Club (Women).....	...	...	...	...	...	...	E	0	80	E	0
Glee Club (Men).....	...	...	...	G	0	187	G	0	232	G	0

#### NURSING

Elementary Nursing.....	...	...	...	401	5	47	...	...	401	5	8
Elementary Nursing.....	...	...	...	...	...	...	402	3	44	...	...
Medical Nursing: Medical Diseases.....	...	...	...	...	...	...	...	...	410	3	44
Medical Nursing: Pediatrics.....	...	...	...	413	3	22	...	...	...	...	...
Medical Nursing: Communicable Diseases.....	...	...	...	...	...	...	...	...	416	3	21
Medical Nursing: Nerv. and Mental Diseases.....	...	...	...	418	1	3	418	1	7	...	...
Medical Nursing: Dermatology.....	...	...	...	420	1	5	...	...	...	...	...
Surgical Nursing: Gynecology and Genito- Urinary Diseases.....	...	...	...	...	...	...	428	2	20	...	...
Surgical Nursing: Orthopedics.....	...	...	...	...	...	...	...	...	430	1	19
Surgical Nursing: Diseases of the Eye.....	...	...	...	...	...	...	...	...	432	1	19
Surgical Nursing: Diseases of the Ear, Nose and Throat.....	...	...	...	...	...	...	...	...	433	1	20
Obstetrical Nursing.....	...	...	...	435	3	24	...	...	...	...	...
Survey of Nursing.....	...	...	...	455	1	6	...	...	...	...	...
Professional Problems.....	...	...	...	...	...	...	460	1	5	...	...
Introduction to Institutional Work.....	...	...	...	...	...	...	...	...	470	1	5
Case Studies.....	...	...	...	...	...	...	480	1	3	480	1

#### NURSING PRACTICE

Nursing Practice.....	...	...	...	501	2	42	...	...	501	2	8
Nursing Practice.....	...	...	...	...	...	...	502	5	45	...	...
Nursing Practice.....	...	...	...	550	4-16	30	550	4-16	32	550	4-16

#### OBSTETRICS

Obstetrics.....	...	...	...	603	...	58	601	...	76	602	...
...	...	...	...	...	...	...	604	...	61	605	...
...	...	...	...	...	...	...	605	...	60	...	...

#### OPHTHALMOLOGY

Ophthalmology.....	...	...	...	601	...	75	...	...	...	...	...
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#### OTO-LARYNGOLOGY

Oto-Laryngology.....	...	...	...	...	...	...	602	...	76	...	...
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Students in All Sections Total No. of
Conducting .....	459	2	29	...	...	...	459	2	42	...	...	...
Harmony .....	460	3	5	460	3	24	...	3	...	...	...	...
Harmony .....	461	3	8	...	...	...	461	3	31	...	...	...
Harmony .....	...	...	...	...	...	...	...	...	...	462	3	34
Harmony .....	...	...	...	463	3	29	...	...	...	...	...	...
Advanced Harmony .....	...	...	...	...	...	...	465	3	21	...	...	...
Harmonic Analysis .....	465	3	10	...	...	...	...	...	...	468	3	27
Form .....	...	...	...	...	...	...	...	...	...	...	...	...
Elementary Sight Singing and Ear Training...	476	2	16	476	2	45	...	...	...	...	...	...
Elementary Sight Singing and Ear Training...	478	2	12	...	...	...	478	2	40	...	...	...
Elementary Sight Singing and Ear Training...	...	...	...	...	...	...	...	...	...	479	2	35
Elementary Sight Singing and Ear Training...	...	...	...	480	4	17	...	...	...	...	...	...
Elementary Sight Singing and Ear Training...	...	...	...	482	3	28	482	3	16	...	...	...
Intermediate Sight Singing and Ear Training...	...	...	...	...	...	...	483	3	27	483	3	14
Intermediate Sight Singing and Ear Training...	...	...	...	485	1	19	...	...	...	...	...	...
Advanced Sight Singing and Ear Training...	...	...	...	...	...	...	486	1	18	...	...	...
Advanced Sight Singing and Ear Training...	...	...	...	...	...	...	...	...	...	...	...	...
Applied Music .....	501	2	33	501	2	55	502	2	65	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	503	2	59
Applied Music .....	...	...	...	...	...	...	...	...	...	...	...	...
Applied Music .....	504	1	15	504	1	36	...	...	...	...	...	...
Applied Music .....	505	1	1	...	...	...	505	1	30	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	506	1	33
Applied Music .....	...	...	...	507	1	13	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	508	1	34	...	...	...
Applied Music .....	508	1	11	...	...	...	...	...	...	509	1	35
Applied Music .....	509	1	2	...	...	...	...	...	...	...	...	...
Applied Music .....	510	1	8	510	1	19	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	511	1	21	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	512	1	14
Applied Music .....	...	...	...	520	1	8	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	521	1	6	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	522	1	9
Applied Music .....	...	...	...	525	1	3	...	...	...	...	...	...
Applied Music .....	...	...	...	...	...	...	526	1	7	...	...	...
Applied Music .....	...	...	...	...	...	...	...	...	...	527	1	9
The Romanticists .....	...	...	...	601	4	24	...	...	...	...	...	...
The Opera .....	...	...	...	602	4	4	...	...	...	...	...	...
Modern Music .....	603	4	38	...	...	...	603	4	27	...	...	...
History of Choral Music .....	...	...	...	...	...	...	...	...	...	605	3	15
Music in the Junior High School .....	610	2	44	610	2	16	...	...	...	...	...	...
High School Music .....	611	2	35	...	...	...	...	...	...	611	2	17
Supervision of Music in Elementary Schools...	612	3	17	612	3	11	...	...	...	...	...	...



Supervision of Music in Secondary Schools.....	...	...	...	614	1	9	...	...	...	613	3	8
Methods of Class Instruction in Piano.....	...	...	...	...	...	...	615	1	7	...	...	...
Methods of Class Instruction in Piano.....	...	...	...	...	...	...	...	...	...	616	1	7
Methods of Class Instruction in Piano.....	...	...	...	617	1	2	...	...	...	...	...	...
Methods of Class Instruction in Voice.....	...	...	...	...	...	...	618	1	3	...	...	...
Methods of Class Instruction in Voice.....	...	...	...	...	...	...	...	...	...	619	1	3
Methods of Class Instruction in Voice.....	630	3	9	630	3	15	...	...	...	...	...	...
Instrumentation .....	...	...	...	...	...	...	632	3	19	...	...	...
Instrumentation .....	...	...	...	...	...	...	...	...	...	635	3	3
Instrumentation .....	...	...	...	...	...	...	...	...	...	...	...	...
Organization and Conducting of the School	...	...	...	...	...	...	642	2	8	...	...	...
Band and Orchestra .....	...	...	...	650	5	3	...	...	...	650	5	4
Minor Problems .....	A	0	76	A	0	225	A	1	175	A	1	175
University Chorus .....	...	...	...	B	0	36	B	1	53	B	1	49
University Orchestra .....	...	...	...	C	0	110	C	1	139	C	1	131
Military Bands .....	...	...	...	D	0	49	D	1	75	D	1	69
Concert Bands .....	...	...	...	...	...	...	E	0	80	E	0	75
Glee Club (Women) .....	...	...	...	G	0	187	G	0	232	G	0	130
Glee Club (Men) .....	...	...	...	...	...	...	...	...	...	...	...	...

# NURSING

Elementary Nursing .....	...	...	...	401	5	47	...	...	...	401	5	8
Elementary Nursing .....	...	...	...	...	...	...	402	3	44	...	...	...
Medical Nursing: Medical Diseases .....	...	...	...	413	3	22	...	...	...	410	3	44
Medical Nursing: Pediatrics .....	...	...	...	...	...	...	...	...	...	416	3	21
Medical Nursing: Communicable Diseases.....	...	...	...	418	1	3	418	1	7	...	...	...
Medical Nursing: Nerv. and Mental Diseases.	...	...	...	420	1	5	...	...	...	...	...	...
Medical Nursing: Dermatology .....	...	...	...	...	...	...	428	2	20	...	...	...
Surgical Nursing: Gynecology and Genito- Urinary Diseases .....	...	...	...	...	...	...	...	...	...	430	1	19
Surgical Nursing: Orthopedics .....	...	...	...	...	...	...	...	...	...	432	1	19
Surgical Nursing: Diseases of the Eye.....	...	...	...	...	...	...	...	...	...	433	1	20
Surgical Nursing: Diseases of the Ear, Nose and Throat .....	...	...	...	435	3	24	...	...	...	...	...	...
Obstetrical Nursing .....	455	1	6	...	...	...	460	1	5	...	...	...
Survey of Nursing .....	...	...	...	...	...	...	...	...	...	470	1	5
Professional Problems .....	...	...	...	...	...	...	480	1	3	480	1	5
Introduction to Institutional Work .....	...	...	...	...	...	...	...	...	...	...	...	...
Case Studies .....	...	...	...	...	...	...	...	...	...	...	...	...

# NURSING PRACTICE

Nursing Practice .....	...	...	...	501	2	42	...	...	...	501	2	8
Nursing Practice .....	...	...	...	...	...	...	502	5	45	...	...	...
Nursing Practice .....	...	...	...	550	4-16	30	550	4-16	32	550	4-16	63

# OBSTETRICS

Obstetrics .....	...	...	...	603	...	58	601	...	76	602	...	76
...	...	...	...	...	...	...	604	...	61	605	...	62
...	...	...	...	...	...	...	605	...	60	...	...	...

# OPHTHALMOLOGY

Ophthalmology .....	...	...	...	601	...	75	...	...	...	...	...	...
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# OTO-LARYNGOLOGY

Oto-Laryngology .....	...	...	...	...	...	...	602	...	76	...	...	...
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THE WORK OF INSTRUCTORS—1929-1930—Continued

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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
<b>PATHOLOGY</b>												
Elementary Pathology .....	...	...	...	450	3	71	451	3	71	401	2	47
General Pathology .....	...	...	...	...	...	...	...	...	...	...	...	...
Dental Pathology .....	...	...	...	460	3	5	...	...	...	452	2	71
Pathology of the Eye .....	...	...	...	...	...	...	...	...	...	...	...	...
*Special Pathology .....	...	...	...	603	3	76	604	3	77	602	5	68
Clinical Pathology .....	...	...	...	...	...	...	...	...	...	605	2	30
Surgical Pathology .....	...	...	...	...	...	...	...	...	...	606	2	30
Medical Pathology .....	...	...	...	...	...	...	...	...	...	607	1	59
Post Mortem Demonstration .....	...	...	...	608	3-5	10	609	3-5	13	610	3-5	3
Advanced Pathology .....	...	...	...	611	3-5	5	612	3-5	5	613	3-5	3
Advanced Special Pathology .....	...	...	...	...	...	...	...	...	...	615	5	1
Experimental Pathology .....	...	...	...	616	3	10	617	3	10	618	3	11
Advanced Clinical Pathology .....	...	...	...	...	...	...	...	...	...	622	2	12
Pathology of the Eye .....	...	...	...	600	1	66	601	3	63	...	...	...
*General Pathology .....	...	...	...	...	...	...	...	...	...	...	...	...
<b>PHARMACY</b>												
Pharmacy Survey .....	...	...	...	400	1	39	...	...	...	...	...	...
Pharmacy .....	...	...	...	401	5	32	401	5	10	...	...	...
Pharmacy .....	...	...	...	...	...	...	402	5	27	402	5	12
Pharmacy .....	...	...	...	403	5	12	...	...	...	403	5	26
Pharmacy .....	...	...	...	404	5	29	404	5	10	...	...	...
Pharmacy .....	...	...	...	...	...	...	405	5	26	405	5	11
Pharmacy .....	...	...	...	406	5	9	...	...	...	406	5	23
Materia Medica .....	...	...	...	407	3	45	...	...	...	...	...	...
Materia Medica .....	...	...	...	...	...	...	408	3	40	...	...	...
Materia Medica .....	...	...	...	...	...	...	...	...	...	409	3	40
Pharmaceutical Analysis .....	...	...	...	410	5	38	...	...	...	...	...	...
Pharmaceutical Analysis .....	...	...	...	...	...	...	411	5	39	...	...	...
Pharmaceutical Analysis .....	...	...	...	...	...	...	...	...	...	412	5	38
Pharmacognosy: Microscopical .....	...	...	...	416	3	36	...	...	...	...	...	...
Pharmacognosy: Microscopical .....	...	...	...	...	...	...	417	3	33	...	...	...
Pharmacognosy: Microscopical .....	...	...	...	...	...	...	...	...	...	418	3	36
Toxicology .....	...	...	...	422	5	13	...	...	...	419	5	35
Pharmacognosy: Commercial .....	...	...	...	...	...	...	...	...	...	422	5	25
Pharmacy: Commercial .....	...	...	...	...	...	...	423	2	24	...	...	...
Pharmacy: Commercial .....	...	...	...	425	1	43	425	1	9	424	2	34
Pharmaceutical Arithmetic .....	...	...	...	...	...	...	426	1	41	426	1	14
Pharmaceutical Arithmetic .....	...	...	...	...	...	...	...	...	...	...	...	...



Pharmacy—Applied .....	...	...	...	...	...	...	...	...	...	...	...	...
Current Literature .....	...	...	...	...	...	...	...	...	...	...	...	...
Pharmaceutical Arithmetic .....	...	...	...	...	...	...	...	...	...	...	...	...
Pharmaceutical Latin .....	...	...	...	...	...	...	...	...	...	...	...	...
Thesis .....	...	...	...	...	...	...	...	...	...	...	...	...
Thesis .....	...	...	...	...	...	...	...	...	...	...	...	...

## PHILOSOPHY

Introduction to Philosophy.....	401	5	58	405	5	67	401	5	54	401	5	109
Elementary Logic .....	402	5	28	402	5	35	402	5	45	402	5	100
Elementary Ethics .....	405	5	27	405	5	37	405	5	56	405	5	78
Ancient and Medieval Philosophy.....	...	...	...	601	5	24	...	...	...	...	...	...
Modern Philosophy .....	602	5	23	...	...	...	602	5	28	...	...	...
Contemporary Philosophy .....	603	5	10	...	...	...	...	...	...	603	5	10
Development of the Hebrew Ideas in the Old Testament .....	...	...	...	...	...	...	607	5	4	...	...	...
Philosophy and Poetry.....	...	...	...	...	...	...	...	...	...	608	3	16
Medieval Philosophy .....	...	...	...	...	...	...	609	3	3	...	...	...
Origin and Development of Religious Ideas...	...	...	...	...	...	...	611	5	25	...	...	...
Evolution of Christian Religion.....	...	...	...	...	...	...	...	...	...	612	5	39
Philosophy of Science.....	652	3	4	...	...	...	...	...	...	...	...	...
Philosophy of Religion.....	653	3	16	...	...	...	...	...	...	653	3	12
Esthetics .....	...	...	...	655	5	6	...	...	...	...	...	...
Principles of Individual and Social Ethics...	...	...	...	...	...	...	...	...	...	656	5	17
Minor Problems .....	660	2-5	3	660	2-5	2	660	2-5	2	660	2-5	5
Metaphysics of Knowledge and Nature.....	...	...	...	661	5	5	...	...	...	...	...	...
Metaphysics of Personality and Values.....	...	...	...	...	...	...	662	3	2	...	...	...
Seminary in Systematic Philosophy.....	...	...	...	801	3	5	...	...	...	...	...	...
Seminary in Systematic Philosophy.....	...	...	...	...	...	...	802	3	2	...	...	...
Seminary in Systematic Philosophy.....	...	...	...	...	...	...	...	...	...	803	3	2
Epochs in the History of Thought.....	...	...	...	...	...	...	806	2	3	...	...	...
Research .....	...	...	...	...	...	...	808	3-10	2	...	...	...
Research .....	...	...	...	809	3-10	1	...	...	...	...	...	...
Research .....	...	...	...	...	...	...	810	3-10	1	...	...	...
Seminary in Social and Political Philosophy...	816	3	1	...	...	...	...	...	...	811	3-10	3
Research .....	...	...	...	...	...	...	...	...	...	...	...	...
Thesis—Dissertation .....	...	...	...	...	...	1	...	...	1	...	...	5

## PHYSICAL EDUCATION—MEN

Hygiene .....	...	...	...	400	1	671	400	1	724	400	1	580
Physical Education .....	...	...	...	401	1	2125	...	...	...	...	...	...
Physical Education .....	...	...	...	...	...	...	402	1	1836	...	...	...
Physical Education .....	...	...	...	...	...	...	...	...	...	403	1	1608
Hygiene .....	...	...	...	410	3	32	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	441	2	37	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	...	442	2	33	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	...	...	...	...	443	2	46
Theory and Practice of Physical Education...	...	...	...	445	3	19	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	...	446	3	27	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	...	...	...	...	447	3	42
Theory and Practice of Physical Education...	...	...	...	449	3	28	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	...	450	3	21	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	...	...	...	...	451	3	17

[illegible]



Theory and Practice of Physical Education...	...	...	541	3	46	...	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	542	3	42	...	543	3	35
Theory and Practice of Physical Education...	...	...	...	...	...	...	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	545	3	27	...	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	546	3	22	...	547	3	25
Theory and Practice of Physical Education...	...	...	...	...	...	...	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	549	3	20	...	...	...	...	...	...	...
Theory and Practice of Physical Education...	...	...	...	...	...	550	3	21	...	551	3	18
Theory and Practice of Physical Education...	...	...	...	...	...	...	...	...	...	643	3	29
Teaching of Health.....	...	...	...	...	...	651	1-4	1	...	...	...	...
Minor Problems in Physical Education.....	...	...	...	...	...	...	...	...	...	...	...	...
Therapeutic Gymnastics, Advanced.....	...	...	671	3	19	...	...	...	...	...	...	...
Organization and Administration of Physical Education .....	...	...	...	...	...	682	5	36	...	...	...	...
History and Principles of Physical Education .....	...	...	...	...	...	683	5	21	...	...	...	...
Kinesiology .....	...	...	691	3	18	...	...	...	...	...	...	...
PHYSICS												
General Physics: Mechanics and Heat.....	...	...	401	5	57	401	5	40	...	...	...	...
General Physics: Sound, Light, Electricity...	...	...	...	...	...	402	5	48	...	402	5	24
General Physics: Mechanics and Heat.....	...	...	403	5	32	...	...	...	...	...	...	...
General Physics: Sound, Light, Electricity...	...	...	...	...	...	404	5	26	...	...	...	...
Elementary Electron Physics.....	...	...	...	...	...	...	...	...	...	409	5	21
General Physics: Mechanics.....	...	...	411	5	249	411	5	33	...	...	...	...
General Physics: Heat, Sound and Light.....	412	5	9	...	...	412	5	221	...	...	...	...
General Physics: Electricity.....	...	...	...	...	...	...	...	...	...	413	5	180
Physics for Agricultural Students; Mechanics, Heat and Electricity.....	...	...	421	5	19	421	5	30	421	5	42	...
General Physics for Engineers: Mechanics, and Heat to Conduction.....	...	...	431	5	304	431	5	137	431	5	25	...
General Physics for Engineers: Heat completed, Sound and Light.....	432	5	16	...	...	432	5	294	...	...	...	...
General Physics for Engineers: Electricity and Magnetism .....	...	...	433	5	31	...	...	...	433	5	220	...
Electricity and Magnetism.....	...	...	435	3	79	...	...	...	...	...	...	...
Electricity and Magnetism.....	...	...	...	...	...	436	5	59	...	...	...	...
Electrical Measurements and Photometry.....	...	...	...	...	...	...	...	...	437	5	50	...
Geometrical and Physical Optics.....	...	...	501	5	9	...	...	...	...	...	...	...
Geometrical and Physical Optics.....	...	...	...	...	...	502	5	8	...	...	...	...
Geometrical and Physical Optics.....	...	...	...	...	...	...	...	...	503	5	6	...
Advanced Light .....	...	...	...	...	...	...	...	...	607	4	9	...
Advanced Electricity .....	...	...	...	...	...	608	4	16	...	...	...	...
Molecular Physics and Heat.....	...	...	609	4	14	...	...	...	...	...	...	...
Conduction of Electricity through Gases and Radioactivity .....	610	4	13	...	...	610	4	10	...	...	...	...
Modern Spectroscopy .....	...	...	611	4	11	...	...	...	...	...	...	...
Periodic and Transient Electric Currents.....	...	...	...	...	...	...	...	...	612	4	20	...
Advanced Physical Laboratory.....	616	3	25	616	3	26	616	3	25	616	3	10
X' Rays and Crystal Structure.....	620	4	23	...	...	...	...	...	...	...	...	...
Acoustics .....	...	...	...	...	...	621	4	13	...	...	...	...
Thermionics and High Vacuum Phenomena.....	622	4	20	...	...	...	...	...	622	4	22	...
Introduction to Theoretical Physics.....	...	...	623	3	17	...	...	...	...	...	...	...
Introduction to Theoretical Physics.....	...	...	...	...	...	624	3	14	...	...	...	...
Introduction to Theoretical Physics.....	...	...	...	...	...	...	...	...	625	3	13	...

THE WORK OF INSTRUCTORS—1929-1930—Continued

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ANNUAL REPORT

COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Minor Investigations .....	...	...	...	630	3	4	630	3	5	630	3	3
Electrical Measurements .....	...	...	...	738	4	40	...	...	...	...	...	...
Thermo-dynamics .....	...	...	...	803	3	11	...	...	...	...	...	...
Thermo-dynamics .....	...	...	...	...	...	...	804	3	10	...	...	...
Seminary in Physics .....	...	...	...	812	1	6	...	...	...	...	...	...
Electronic Theory and Atomic and Molecular Structure .....	...	...	...	813	3	10	...	...	...	...	...	...
Electronic Theory and Atomic and Molecular Structure .....	...	...	...	...	...	...	814	3	7	...	...	...
Electronic Theory and Atomic and Molecular Structure .....	...	...	...	...	...	...	...	...	...	815	3	12
Theoretical Mechanics .....	...	...	...	817	3	20	...	...	...	...	...	...
Theoretical Mechanics .....	...	...	...	...	...	...	818	3	15	...	...	...
Theoretical Mechanics .....	...	...	...	...	...	...	...	...	...	819	3	11
Statistical Mechanics .....	...	...	...	824	3	7	...	...	...	...	...	...
Problems in Quantum Mechanics .....	...	...	...	...	...	...	825	...	6	...	...	...
Astral Physics .....	...	...	...	...	...	...	...	...	...	826	...	6
Research Laboratory .....	830	3	3	830	3	12	...	...	...	...	...	...
Research Laboratory .....	...	...	...	...	...	...	831	3	13	...	...	...
Research Laboratory .....	...	...	...	...	...	...	...	...	...	832	3	20
Seminary in Theoretical Physics .....	851	3	12	...	...	...	851	3	25	...	...	...
PHYSIOLOGICAL CHEMISTRY												
Physiological Chemistry .....	...	...	...	...	...	...	...	...	...	401	3	54
Materia Medica .....	...	...	...	...	...	...	405	4	49	...	...	...
Physiological Chemistry .....	...	...	...	601	5	109	...	...	...	...	...	...
Physiological Chemistry .....	...	...	...	...	...	...	602	5	89	...	...	...
Quantitative Methods of Blood and Urine Analysis .....	...	...	...	...	...	...	...	...	...	603	3	11
Pharmacology .....	...	...	...	...	...	...	...	...	...	605	5	55
Materia Medica .....	...	...	...	...	...	...	606	5	65	...	...	...
Research in Physiological Chemistry .....	...	...	...	801	5 or 10	3	...	...	...	...	...	...
Research in Physiological Chemistry .....	...	...	...	...	...	...	802	3-5	2	...	...	...
Research in Physiological Chemistry .....	...	...	...	...	...	...	...	...	...	803	3-5	4
Advanced Physiological Chemistry .....	...	...	...	...	...	...	...	...	...	807	3	5
PHYSIOLOGY												
Elementary Physiology .....	...	...	...	401	5	18	...	...	...	...	...	...
Elementary Physiology .....	...	...	...	...	...	...	402	5	18	...	...	...
Elementary Physiology .....	407	5	55	407	5	294	407	5	59	...	...	...



Elementary Physiology .....	408	5	149	408	5	40
Elementary Physiology .....	409	5	114	409	5	35
Physiology for Nurses .....	...	...	...	412	...	50
Comparative Physiology .....	413	4	40	...	...	...
Comparative Physiology .....	414	4	37	...	...	...
Principles of Physiology .....	...	...	...	419	5	130
Dental Physiology .....	501	6	49	...	...	...
Dental Physiology .....	...	...	502	6	46	...
Physiology for Dentistry .....	...	...	...	503	2	47
Advanced Physiology .....	604	6	67	...	...	...
Advanced Physiology .....	...	...	605	6	66	...
Physiological Laboratory .....	611	5	4	611	5	1
Physiological Laboratory .....	612	5	1	612	5	5
Physiological Laboratory .....	...	...	...	613	5	11
Advanced Physiology .....	...	...	616	5	1	...
General Physiology .....	...	...	...	617	5	13
Physiology of Metabolism .....	618	5	15	...	...	...
Physiology of Reproduction .....	...	...	619	3 or 5	12	...
Physiology of Exercise .....	...	...	...	...	620	5
Research Physiology: Minor .....	801	5	3	...	...	...
Research Physiology: Minor .....	...	...	802	5	3	...
Research Physiology: Minor .....	...	...	...	...	803	5
Research Physiology: Major .....	804	10-15	1	...	804	10-15
Research Physiology: Major .....	...	...	805	10-15	1	...
Research Physiology: Major .....	...	...	...	...	806	10-15
Dissertation .....	...	...	...	...	...	1
PHONETICS						
Phonetics .....	...	...	601	5	11	...
Phonetics .....	...	...	...	...	605	5
Phonetics .....	...	...	...	...	...	11
Phonetics .....	...	...	700	3-5	16	700
POLITICAL SCIENCE						
American Federal Government .....	401	5	60	401	5	244
Government and Politics of Foreign Countries .....	...	...	...	402	5	84
American State and Local Government .....	403	5	25	403	5	34
State Legislative and Administrative Problems .....	604	3	16	...	...	...
Principles of Public Administration .....	...	...	605	5	20	...
Municipal Government .....	607	5	24	607	5	22
Municipal Functions .....	...	...	...	...	608	3
Municipal Problems .....	...	...	...	...	...	15
Introduction to Jurisprudence .....	...	...	611	5	52	...
International Law .....	...	...	...	...	612	3
Contemporary International Politics .....	...	...	...	...	...	40
American Constitutional Law .....	...	...	...	...	616	3
History of Political Theories .....	...	...	619	3	21	...
Recent Political Theories .....	...	...	...	...	...	...
Methods of Governmental Research .....	...	...	631	2	4	...
Methods of Governmental Research .....	...	...	...	...	632	2
Elections and Parties .....	...	...	635	5	17	...
Honor Courses .....	...	...	705	3	1	...
Honors Course .....	...	...	...	...	706	4
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Research in Political Science.....	801	3-5	10	801	3-5	4	802	3-5	3	803	3-5	3
Research in Political Science.....	...	...	...	...	...	...	...	...	...	...	...	...
Research in Political Science.....	...	...	...	...	...	...	...	...	...	...	...	...
Thesis .....	...	...	...	...	...	...	...	...	...	...	...	...
POULTRY HUSBANDRY												
Farm Poultry .....	...	...	...	401	5	48	401	5	34	401	5	49
Poultry Judging and Breeding.....	...	...	...	402	5	5	...	...	...	...	...	...
Incubation and Brooding.....	...	...	...	...	...	...	...	...	...	408	5	4
Poultry Feeding and Housing.....	...	...	...	...	...	...	601	5	18	...	...	...
Hatchery Management .....	...	...	...	...	...	...	...	...	...	602	5	6
Marketing Poultry Products.....	...	...	...	603	3	10	...	...	...	...	...	...
Special Problems in Poultry Husbandry.....	...	...	...	...	...	...	701	3-15	8	701	3-15	7
Research .....	...	...	...	801	5	1	801	5	1	801	5	2
PRINCIPLES OF EDUCATION												
Principles of Education.....	301	3	124	...	...	...	...	...	...	...	...	...
Principles of Education.....	302	3	86	...	...	...	...	...	...	...	...	...
Principles and Methods of Elementary School Teaching .....	303	2	24	...	...	...	...	...	...	...	...	...
Teaching of Arithmetic in the Elementary Schools .....	304	2	24	...	...	...	...	...	...	...	...	...
Teaching of History and Citizenship in the Elementary Schools .....	306	2	45	...	...	...	...	...	...	...	...	...
Methods of High School Teaching.....	312	2	20	...	...	...	...	...	...	...	...	...
Teaching the Primary Grades.....	316	2	58	...	...	...	...	...	...	...	...	...
Teaching of Geography in the Elementary School .....	319	2	19	...	...	...	...	...	...	...	...	...
Teaching Nature Study and Science in the Elementary School .....	320	2	28	...	...	...	...	...	...	...	...	...
Teaching High School Literature.....	340	3	51	...	...	...	...	...	...	...	...	...
Teaching High School Literature.....	341	3	33	...	...	...	...	...	...	...	...	...
Elementary Teacher Training.....	376	2	16	...	...	...	...	...	...	...	...	...
Methods and Problems of the Physical Sciences.....	382	2	22	...	...	...	...	...	...	...	...	...
Methods and Problems of the Physical Sciences.....	383	2	25	...	...	...	...	...	...	...	...	...
The History Course of Study in Secondary Schools .....	384	3	37	...	...	...	...	...	...	...	...	...
The History Course of Study in Secondary Schools .....	385	3	37	...	...	...	...	...	...	...	...	...
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Principles of Secondary Education.....	405	3	15	...	...	...	405	3	5	...	...	...
Contemporary Educational Practices.....	...	...	...	...	...	...	406	3	22	...	...	...
Methods of High School Teaching.....	...	...	...	410	3	112	...	...	...	410	3	272
Principles and Methods of Elementary	...	...	...	...	...	...	...	...	...	...	...	...
School Teaching.....	...	...	...	...	...	...	...	...	...	430	5	22
Supervised Teaching in Secondary Schools....	...	...	...	440	5	111	...	...	...	440	5	250
Supervised Teaching in Elementary Schools....	...	...	...	...	...	...	...	...	...	441	10	20
Teaching of Arithmetic in the Elementary	...	...	...	...	...	...	...	...	...	...	...	...
Schools.....	...	...	...	492	3	12	...	...	...	...	...	...
Teaching of English Studies in the	...	...	...	...	...	...	...	...	...	...	...	...
Elementary Schools.....	493	3	79	...	...	...	493	3	35	...	...	...
Teaching of Social Studies in the	...	...	...	...	...	...	...	...	...	...	...	...
Elementary Schools.....	...	...	...	...	...	...	494	3	40	...	...	...
Teaching the Primary Grades.....	...	...	...	495	3	14	...	...	...	...	...	...
Teaching Geography in the Elementary Schools	...	...	...	496	3	14	...	...	...	...	...	...
Teaching Children's Literature.....	499	3	33	499	3	49	...	...	...	...	...	...
Moral Ideals in Education.....	601	3	34	...	...	...	...	...	...	601	3	8
Cultural and Vocational Ideals in Education..	605	4	23	...	...	...	...	...	...	...	...	...
Problems of Junior High School Teaching....	...	...	...	...	...	...	606	5	6	...	...	...
Supervision of Teaching in Secondary Schools	610	3	69	610	3	9	...	...	...	...	...	...
Scientific Studies in Elementary Education....	612	3	32	...	...	...	612	3	4	...	...	...
Supervision of Elementary School Teaching...	613	3	35	...	...	...	...	...	...	613	3	13
Curriculum Construction in Elementary	...	...	...	...	...	...	...	...	...	...	...	...
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Experimental Elementary Schools.....	615	3	25	615	3	21	...	...	...	...	...	...
Conceptions of Mind in Educational Theory...	620	3	77	620	3	70	...	...	...	...	...	...
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Minor Problems.....	...	...	...	...	...	...	...	...	...	653	2-4	38
Methods and Problems of the Physical Sciences	...	...	...	660	4	12	...	...	...	...	...	...
Methods and Problems of the Physical Sciences	...	...	...	...	...	...	...	...	...	661	4	5
Teaching High School Literature.....	...	...	...	662	5	52	...	...	...	662	5	43
The History Course of Study in Secondary	...	...	...	...	...	...	...	...	...	...	...	...
Schools.....	...	...	...	...	...	...	...	...	...	663	5	82
The Dalton Plan in Relation to New Move-	...	...	...	...	...	...	...	...	...	...	...	...
ments in Education.....	667	2	205	...	...	...	...	...	...	...	...	...
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The Educative Process.....	682	3	19	...	...	...	682	3	26	...	...	...
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Bearings.....	683	3	52	...	...	...	...	...	...	683	3	17
The Place of Scientific Method in Education..	...	...	...	...	...	...	...	...	...	684	3	25
The Teaching of History.....	700	3	41	700	3	60	...	...	...	700	3	57
The Teaching of Biology.....	...	...	...	...	...	...	...	...	...	705	3	35
The Teaching of Chemistry.....	...	...	...	...	...	...	...	...	...	710	3	18
Teaching High School Composition.....	714	3	54	714	3	55	...	...	...	714	3	53
Teaching and Supervision of Journalism	...	...	...	...	...	...	...	...	...	...	...	...
in Secondary Schools.....	716	3	15	...	...	...	...	...	...	...	...	...

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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
The Teaching of Dramatics.....	...	...	...	717	5	7	...	...	...	...	...	...
The Teaching of German.....	...	...	...	730	3	9	725	3	10	...	...	...
Methods of Teaching Latin.....	...	...	...	...	...	...	...	...	...	...	...	...
The Teaching of Latin.....	731	3	22	...	...	...	...	...	...	...	...	...
The Teaching of Mathematics.....	735	3	22	735	3	13	...	...	...	...	...	...
The Teaching of French.....	740	3	3	740	3	19	...	...	...	...	...	...
The Teaching of Spanish.....	745	3	6	...	...	...	...	...	...	745	3	9
Teaching of Mechanical Drawing.....	...	...	...	750	3	34	...	...	...	...	...	...
Teaching of Mechanical Drawing.....	...	...	...	...	...	...	751	3	33	...	...	...
The Teaching of Physics.....	...	...	...	755	3	5	...	...	...	...	...	...
Spoken and Written English: Teachers' Course	760	3	6	...	...	...	760	3	5	...	...	...
Teaching of Nursing.....	...	...	...	...	...	...	...	...	...	770	3	4
Special Problems in Educational Theory.....	801	3	17	...	...	...	...	...	...	...	...	...
Special Problems in Educational Theory.....	...	...	...	802	3	21	...	...	...	...	...	...
Special Problems in Educational Theory.....	...	...	...	...	...	...	803	3	10	...	...	...
Special Problems in Educational Theory.....	...	...	...	...	...	...	...	...	...	804	3	6
Special Problems in Secondary Education.....	...	...	...	811	3	14	...	...	...	...	...	...
Special Problems in Secondary Education.....	...	...	...	...	...	...	812	3	14	...	...	...
Special Educational Problems in the Social Studies in Secondary Schools.....	814	3	4	...	...	...	...	...	...	...	...	...
Special Educational Problems in the Social Studies in Secondary Schools.....	...	...	...	...	...	...	...	...	...	816	3	4
Special Educational Problems in the Physical Science in Secondary Schools.....	820	3	2	...	...	...	...	...	...	...	...	...
Special Problems in Elementary Education.....	824	3	9	...	...	...	...	...	...	...	...	...
Special Problems in Elementary Education.....	...	...	...	825	3	5	...	...	...	...	...	...
Special Problems in Elementary Education.....	...	...	...	...	...	...	826	3	2	...	...	...
Problems in the Practice of Elementary Supervision.....	...	...	...	...	...	...	830	3	10	...	...	...
The Teaching and Supervision of History in the Secondary Schools.....	835	3	11	...	...	...	...	...	...	...	...	...
Problems in the Practice of Elementary Supervision.....	840	3	19	...	...	...	...	...	...	...	...	...
Teaching and Supervision of English in the Secondary Schools.....	843	3	12	...	...	...	...	...	...	...	...	...
Special Problems in the Teaching and Supervision of the Foreign Languages in the Secondary Schools.....	...	3 or more	...	...	3 or more	...	...	...	...	848	1-3	4
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Major Research .....	...	...	...	852	3 or more	2	...	...	...	...	...	...
Major Research .....	...	...	...	...	...	...	...	...	...	853	3 or more	9
College Teaching .....	...	...	...	...	...	...	...	...	...	860	3	13
Technic of Curriculum Construction.....	...	...	...	861	...	21	...	...	...	...	...	...
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Intermediate General Psychology.....	406	3	13	...	...	...	...	...	...	406	3	14
Intermediate General Psychology.....	406	3	13	...	...	...	...	...	...	...	...	...
Educational Psychology .....	407	5	162	407	5	277	407	5	180	407	5	188
Mental Hygiene .....	408	2	29	...	...	...	408	2	84	...	...	...
Introduction to Applied Psychology.....	...	...	...	...	...	...	...	...	...	409	3	44
Psychology of Elem. School Subjects.....	...	...	...	410	3	42	...	...	...	...	...	...
Psychology of Effective Study.....	...	...	...	411	3	5	411	5	11	411	3	18
Psychology for Engineers.....	...	...	...	...	...	...	...	...	...	501	3	38
Experimental Psychology: Introduction.....	...	...	...	601	3	21	...	...	...	...	...	...
Experimental Psychology: Inter.....	...	...	...	...	...	...	602	3	14	...	...	...
Experimental Psychology: Advanced.....	...	...	...	605	...	...	...	...	...	603	3	9
Physiological Psychology .....	...	...	...	605	3	47	...	...	...	...	...	...
Advanced Physiological Psychology.....	...	...	...	...	...	...	606	3	13	...	...	...
Genetic Psychology and Child Study.....	607	5	57	...	...	...	...	...	...	607	5	62
Educational Statistics: Elementary.....	...	...	...	608	3	24	...	...	...	...	...	...
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Adolescence .....	610	3	47	610	3	69	...	...	...	...	...	...
The Mentally Deficient Child.....	611	3	32	611	3	50	...	...	...	...	...	...
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Elementary Psychological Clinic.....	...	...	...	...	...	...	617	2	19	...	...	...
Clinical Mental Tests.....	618	2	10	618	2	21	...	...	...	618	2	12
Advanced Psychological Clinic.....	...	...	...	619	2	10	619	2	4	619	2	9
Practicum in Mental Diagnosis.....	620	2	8	620	2	1	620	2	3	620	2	5
Social Psychology .....	621	3	30	...	...	...	621	3	87	...	...	...
Psychology of the Delinquent Child.....	...	...	...	...	...	...	...	...	...	622	3	69
Problems in Learning and Thinking.....	...	...	...	...	...	...	625	3	20	...	...	...
Advanced Educational Psychology.....	625	3	20	...	...	...	...	...	...	628	3	9
Advanced Psychology .....	629	5	27	629	5	29	...	...	...	...	...	...
Psychology of Feeling and Emotion.....	...	...	...	...	...	...	630	5	20	...	...	...
Theory of Intelligence.....	...	...	...	...	...	...	631	3	17	...	...	...
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Psychology of Advertising.....	...	...	...	635	3	51	...	...	...	635	3	53
Advertising Laboratory .....	...	...	...	...	...	...	636	3	8	...	...	...
Industrial Psychology .....	...	...	...	637	3	57	...	...	...	...	...	...
Psychology and Personnel.....	...	...	...	...	...	...	639	3	49	...	...	...
Educational and Vocational Guidance.....	...	...	...	...	...	...	640	3	11	...	...	...
Abnormal Psychology .....	...	...	...	...	...	...	641	5	85	...	...	...
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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Abnormal Psychology .....	...	...	...	...	...	...	...	...	...	643	1	58
Human Motives and Incentives .....	...	...	...	...	...	...	...	...	...	644	3	16
History of Psychology .....	...	...	...	645	5	26	...	...	...	...	...	...
Minor Problems .....	650	1	23	650	1	29	650	1	35	650	1	55
Psychology of High School Subjects .....	652	3	21	...	...	...	652	3	13	...	...	...
Special Response Categories .....	...	...	...	653	3	8	...	...	...	...	...	...
Advanced Statistics .....	...	...	...	...	...	...	...	...	...	654	3	7
Comparative Psychology .....	...	...	...	655	3	6	...	...	...	...	...	...
Comparative Psychology .....	...	...	...	...	...	...	...	...	...	656	3	5
Adult Testing Laboratory .....	...	...	...	659	3	8	...	...	...	...	...	...
Comparative Psychology Laboratory .....	...	...	...	...	...	...	...	...	...	660	3	3
The Elementary and Pre-School Child .....	662	3	19	...	...	...	662	3	21	...	...	...
Psychological Problems of Deans of Women .....	665	3	8	...	...	...	...	...	...	...	...	...
Research Problems of the Dean of Women .....	...	...	...	...	...	...	...	...	...	...	...	...
Major Research .....	801	3	38	801	3	35	801	3	6	801	3	52
Seminary in General Psychology .....	...	...	...	802	3	13	802	3	12	802	3	10
Seminary in Psychology .....	803	2	7	...	...	...	...	...	...	803	2	8
Contemporary Psychological Literature .....	...	...	...	805	1	11	805	1	8	805	1	9
Seminary in Abnormal Psychology .....	...	...	...	...	...	...	806	2	8	...	...	...
Psycho-Analysis .....	...	...	...	808	3	24	...	...	...	...	...	...
Psychological Problems in Higher Education .....	810	2	13	...	...	...	...	...	...	...	...	...
Advanced Theoretical Psychology .....	...	...	...	...	...	...	...	...	...	811	...	13
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Elementary Nursing .....	407	2	31	...	...	...	407	2	57	407	2	122
Personal Hygiene .....	...	...	...	...	...	...	601	3	11	...	...	...
Public Health Problems .....	...	...	...	602	3 & 5	19	602	3 & 5	20	602	3 & 5	35
Industrial Hygiene .....	...	...	...	603	3 & 5	21	603	3 & 5	45	603	3 & 5	29
Preventive Medicine .....	...	...	...	604	3	58	...	...	...	...	...	...
Preventive Medicine .....	...	...	...	...	...	...	605	3	58	...	...	...
Preventive Medicine .....	...	...	...	...	...	...	...	...	...	606	3	58
Personal Hygiene .....	...	...	...	801	3	1	...	...	...	...	...	...
Public Health Problems .....	...	...	...	...	...	...	802	4	2	...	...	...
Industrial Hygiene .....	...	...	...	...	...	...	...	...	...	803	5	2
ROMANCE LANGUAGES												
FRENCH												
Elementary French .....	401	5	14	401	5	271	401	5	107	401	5	78



Elementary French .....	402	5	20	402	5	103	402	5	174	402	5	69
Intermediate French .....	403	5	12	403	5	181	403	5	64	403	5	106
Intermediate French .....	404	5	10	404	5	111	404	5	104	404	5	57
Elementary Course in Reading of French...	405	5	19	405	5	6	...	...	...	405	5	6
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Advanced French .....	413	5	20	413	5	51	413	5	41	413	5	27
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French Literature of the Seventeenth Century 1660-1700 .....	...	...	...	602	5	29	...	...	...	602	5	12
French Literature of the Eighteenth Century 1700-1750 .....	...	...	...	607	3	21	...	...	...	...	...	...
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The French Novel to 1850 .....	...	...	...	...	...	...	609	3	12	...	...	...
The French Novel, 1850 to Present .....	610	3	18	...	...	...	...	...	...	610	3	24
French Lyric Poetry .....	...	...	...	...	...	...	...	...	...	615	3	6
Adv. French Conversation and Composition .....	...	...	...	...	...	...	620	5	12	...	...	...
Intermediate French Conversation and Com- position .....	...	...	...	623	3	15	623	3	15	...	...	...
Intermediate French Conversation and Com- position .....	...	...	...	...	...	...	624	3	9	624	3	11
Explication de Textes .....	...	...	...	...	...	...	625	3	8	...	...	...
Explication de Textes .....	...	...	...	...	...	...	...	...	...	626	3	17
French Phonetics .....	627	3	28	627	3	8	627	3	20	...	...	...
Review of French Syntax .....	628	3	19	628	3	26	...	...	...	...	...	...
History of the French Language .....	...	...	...	...	...	...	629	3	12	...	...	...
Honors Course in French .....	...	...	...	705	3-5	1	...	...	...	...	...	...
Honors Course in French .....	...	...	...	...	...	...	706	1	2	...	...	...
Honors Course in French .....	...	...	...	...	...	...	...	...	...	707	3	3
Introduction to Old French .....	...	...	...	801	3	13	...	...	...	...	...	...
Introduction to Old French .....	...	...	...	...	...	...	802	3	12	...	...	...
Research in French Literature .....	809	3-5	7	809	3-5	1	809	3-5	8	809	3-5	7
Seminary in French Literature .....	811	3	8	811	3	7	...	...	...	...	...	...
Seminary in French Literature .....	...	...	...	...	...	...	812	3	6	...	...	...
Seminary in French Literature .....	...	...	...	...	...	...	...	...	...	817	3	12
ITALIAN												
Elementary Italian .....	...	...	...	401	5	21	401	5	18	...	...	...
Elementary Italian .....	...	...	...	...	...	...	402	5	14	402	5	14
Modern Italian Literature (1800-1850) .....	...	...	...	...	...	...	...	...	...	601	5	7
Modern Italian Literature (1851-1900) .....	...	...	...	602	5	5	...	...	...	...	...	...
Survey of Italian Literature to 1400 .....	...	...	...	...	...	...	609	3	9	...	...	...
Dante's Life and Works .....	...	...	...	611	3	6	...	...	...	...	...	...
Dante's Life and Works .....	...	...	...	...	...	...	612	3	3	...	...	...
SPANISH												
Elementary Spanish .....	401	5	24	401	5	449	401	5	154	401	5	115
Elementary Spanish .....	402	5	13	402	5	92	402	5	304	402	5	122
Intermediate Spanish .....	403	5	5	403	5	106	403	5	52	403	5	134
Intermediate Spanish .....	404	5	8	404	5	69	404	5	56	404	5	22

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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Commercial Correspondence .....	...	...	...	...	...	...	405	5	18	...	...	...
Advanced Spanish .....	...	...	...	413	5	21	413	5	16	413	5	24
Advanced Spanish .....	414	5	4	414	5	15	414	5	12	414	5	11
Advanced Composition and Conversation .....	...	...	...	605	3	8	...	...	...	...	...	...
Advanced Composition and Conversation .....	...	...	...	...	...	...	606	3	6	...	...	...
The Modern Spanish Novel .....	...	...	...	607	5	14	...	...	...	...	...	...
The Modern Spanish Novel .....	608	5	14	...	...	...	608	5	13	...	...	...
Drama of the Golden Age .....	...	...	...	611	5	9	...	...	...	...	...	...
Drama of the Golden Age .....	...	...	...	...	...	...	612	5	5	...	...	...
Survey of Spanish Literature from Earliest Times to end of 19th Century .....	...	...	...	...	...	...	615	5	12	...	...	...
Survey of Spanish Literature from Earliest Times to end of 19th Century .....	...	...	...	...	...	...	...	...	...	616	5	16
Advanced Syntax .....	...	...	...	617	3	11	...	...	...	626	5	7
The Spanish Drama of the 16th Century .....	...	...	...	...	...	...	...	...	...	...	...	...
Honors Course in Spanish .....	...	...	...	705	3-5	2	...	...	...	...	...	...
Honors Course in Spanish .....	...	...	...	...	...	...	706-707	3	1	706-707	3	1
Old Spanish .....	805	3	8	805	3	1	...	...	...	...	...	...
Old Spanish .....	...	...	...	...	...	...	806	3	4	...	...	...
Research in Spanish Literature .....	810	3-5	2	810	3-5	2	810	3-5	5	810	3-5	4
Seminary in Spanish Literature .....	815	3	6	815	3	3	815	3	4	815	3	6
RURAL ECONOMICS												
Agricultural Economics .....	...	...	...	401	5	40	...	...	...	401	5	51
Farm Management .....	...	...	...	402	5	25	...	...	...	402	5	26
Farm Bookkeeping and Business Records .....	...	...	...	403	3	4	403	3	14	...	...	...
Sociology of Farm Folk .....	...	...	...	...	...	...	405	5	11	...	...	...
Farm Cost Accounts .....	...	...	...	602	3	6	...	...	...	...	...	...
Co-operation in Agriculture .....	...	...	...	...	...	...	603	5	24	...	...	...
The Agricultural Industry .....	...	...	...	...	...	...	605	3	23	...	...	...
Sociology of Farm Folk .....	...	...	...	606	5	3	...	...	...	...	...	...
Rural Social Organization .....	...	...	...	...	...	...	607	3	7	...	...	...
Rural Social Environment .....	...	...	...	...	...	...	...	...	...	608	3	4
Price of Farm Products .....	...	...	...	...	...	...	...	...	...	612	3	33
Distribution of Farm Products .....	...	...	...	613	5	21	...	...	...	613	5	34
Business Management in Agricultural Marketing .....	...	...	...	...	...	...	...	...	...	614	3	8
Economics of Live Stock Marketing .....	...	...	...	...	...	...	625	3	10	...	...	...
Special Problems .....	...	...	...	701	3-15	1	...	...	...	701	3-15	4
Research Work and Seminary in Rural Economics .....	...	...	...	801	3-15	21	801	3-15	1	801	3-15	3



# SCHOOL ADMINISTRATION

Fundamentals in School Administration.....	600	3	166	600	3	156	600	3	149	600	3	129
Child Accounting.....	601	3	225	601	3	35	601	3	158	601	3	106
The Teaching Corps.....	605	3	100	605	3	...	...	...	...	605	3	16
School Finance.....	607	3	19	...	...	...	607	3	10	...	...	...
Business Management of Schools.....	608	3	71	...	...	...	...	...	...	608	3	10
Extra-Curricular Activities.....	609	3	71	609	3	19	...	...	...	...	...	...
Administration of Rural Education.....	610	3	13	610	3	17	...	...	...	...	...	...
Minor Research Problems.....	617	2-4	5	...	...	...	...	...	...	...	...	...
Minor Research Problems.....	...	...	...	618	2-4	14	...	...	...	618	2-4	6
Proseminary (Teachers in Service).....	...	...	...	621	2	34	...	...	...	...	...	...
Proseminary (Teachers in Service).....	...	...	...	...	...	...	622	2	53	...	...	...
Proseminary (Teachers in Service).....	...	...	...	...	...	...	...	...	...	623	2	7
Administration of Standard Tests in Elementary Schools.....	624	3	17	...	...	...	...	...	...	624	3	8
Administration of Standard Tests in Secondary Schools.....	625	3	47	...	...	...	625	3	24	...	...	...
Administration of Health Education.....	626	3	5	...	...	...	...	...	...	...	...	...
Administration of Vocational Education.....	627	3	9	...	...	...	...	...	...	627	3	5
Administrative Problems of the Elementary School Principal.....	628	3	22	...	...	...	...	...	...	628	3	5
Organization of the Junior High School.....	631	3	18	...	...	...	...	...	...	...	...	...
High School Administration (city) 1st course.....	632	3	43	632	3	13	...	...	...	...	...	...
High School Administration (city) 2nd course.....	633	3	26	...	...	...	633	3	21	...	...	...
School Publicity.....	636	2	36	...	...	...	...	...	...	...	...	...
Administration of Special Education.....	637	3	5	...	...	...	...	...	...	637	3	10
Administration of the Curriculum in the Elementary School.....	640	3	17	...	...	...	...	...	...	...	...	...
Administration of the Curriculum in the Secondary School.....	642	3	45	...	...	...	642	3	9	...	...	...
Educational Statistics: Elementary.....	643	3	117	...	...	...	...	...	...	...	...	...
Educational Statistics: Intermediate.....	644	3	20	...	...	...	...	...	...	...	...	...
Planning and Construction of School Buildings.....	647	3	16	647	3	9	...	...	...	...	...	...
Equipment of School Buildings.....	648	2	20	...	...	...	...	...	...	648	2	5
Administrative Problems of the Non-Urban Secondary School Principal.....	650	3	6	...	...	...	...	...	...	...	...	...
Fundamentals in School Administration for Administrators.....	651	3	67	...	...	...	...	...	...	651	3	6
Administration of the Dalton Laboratory Plan.....	655	2	48	...	...	...	...	...	...	...	...	...
Administration of Platoon Schools.....	657	2	16	...	...	...	...	...	...	...	...	...
Administration of Teacher Retirement and Pension Systems.....	670	1	17	...	...	...	...	...	...	...	...	...
Preparation of Theses and Other Scientific Papers.....	800	1	73	...	...	...	800	1	13	...	...	...
Administration of Normal Schools and Colleges.....	801	3	12	...	...	...	...	...	...	...	...	...
Seminary in School Administration.....	802	2-5	38	802	2-5	10	802	2-5	8	802	2-5	9
Ad Interim Projects.....	...	...	...	...	...	...	...	...	...	803	2-5	13
Major Research Problems.....	804	3	14	...	...	...	...	...	...	...	...	...
Major Research Problems.....	...	...	...	805	3	14	...	...	...	...	...	...
Major Research Problems.....	...	...	...	...	...	...	806	3	15	...	...	...
Major Research Problems.....	...	...	...	...	...	...	...	...	...	807	3	18
Social Foundations of Public School Administration.....	810	3	17	...	...	...	...	...	...	...	...	...

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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
State Administration of Education.....	811	3	20	811	3	12	...	...	...	...	...	...
Legal Basis of School Administration.....	813	3	19	...	...	...	...	...	...	...	...	...
Seminary in County School Administration..	815	2-5	16	...	...	...	...	...	...	...	...	...
Seminary in School Finance and Business Management.....	816	2-5	8	...	...	...	...	...	...	...	...	...
Seminary in Secondary School Administration..	817	2-5	16	...	...	...	...	...	...	...	...	...
The Administration of Curriculum Reorganization.....	820	3	19	...	...	...	...	...	...	...	...	...
The Administration of Guidance Programs....	826	3	69	...	...	...	...	...	...	...	...	...
Administrative Problems of the City Superintendent.....	830	3	7	...	...	...	...	...	...	...	...	...
Administration of Experimental Education...	835	2	14	...	...	...	...	...	...	...	...	...
Administration of the Junior College.....	840	3	7	...	...	...	...	...	...	840	3	3
Administration of Teacher Training Institutions.....	843	3	7	...	...	...	...	...	...	843	3	6
Seminary in Administration of Higher Education.....	845	2-4	5	...	...	...	...	...	...	845	2-4	6
SOCIOLOGY												
Principles of Sociology.....	401	5	108	401	5	298	401	5	260	401	5	244
Principles of Sociology.....	402	5	30	402	5	137	402	5	221	402	5	212
Principles of Sociology.....	...	...	...	410	5	67	410	5	66	410	5	109
The Family.....	601	4	28	...	...	...	601	4	45	601	4	30
Introduction to Anthropology.....	...	...	...	...	...	...	611	4	17	...	...	...
Social Anthropology.....	...	...	...	...	...	...	...	...	...	612	4	9
Poverty.....	...	...	...	...	...	...	618	3	35	...	...	...
Social Treatment of Dependents.....	619	3	10	619	3	21	...	...	...	...	...	...
Social Treatment of the Child.....	...	...	...	...	...	...	620	3	26	...	...	...
The Community and the Child.....	...	...	...	621	3	16	...	...	...	621	3	58
The Criminal.....	...	...	...	...	...	...	...	...	...	625	3	78
Penology.....	...	...	...	626	3	20	...	...	...	...	...	...
Penology.....	...	...	...	...	...	...	627	3	13	...	...	...
Probation.....	628	3	18	...	...	...	...	...	...	...	...	...
Field Work in Social Statistics.....	...	...	...	638	5	17	...	...	...	638	5	12
Social Statistics.....	...	...	...	...	...	...	639	4	27	...	...	...
Sources of Social Data.....	...	...	...	640	3	14	...	...	...	...	...	...
Sources of Social Data.....	...	...	...	...	...	...	641	3	6	...	...	...
Case Recording.....	...	...	...	...	...	...	642	3	12	642	3	7
Leisure and Recreation.....	...	...	...	645	4	41	...	...	...	...	...	...
Social Organization and Administration of Recreation Facilities.....	...	...	...	...	...	...	646	4	21	...	...	...



Girls' Work Organization.....	...	...	...	...	...	...	...	...	651	4	11
Municipal Sociology.....	...	...	...	...	...	...	...	...	655	4	29
Rural Social Institutions.....	...	...	656	4	29	...	...	...	...	...	...
Welfare Problems in Rural Communities.....	...	...	...	...	...	657	4	9	...	...	...
Social Welfare Organization.....	661	2	11	...	...	...	...	...	...	...	...
Social Order and Social Control.....	...	...	665	3	38	...	...	...	...	...	...
Social Evolution.....	...	...	...	...	...	666	3	23	...	...	...
Social Progress.....	...	...	...	...	...	...	...	...	667	3	32
Community Organization.....	...	...	...	...	...	...	...	...	668	3	32
Community Health Organization.....	...	...	...	...	...	670	3	12	...	...	...
Community Health Organization.....	...	...	...	...	...	...	...	...	671	3	9
Field Work in Sociology.....	675	6-12	8	...	...	675	6-12	2	675	6-12	14
Social Case Work.....	695	3	17	695	3	26	...	...	...	...	...
Social Case Work.....	...	...	...	...	...	696	3	24	...	...	...
History of Sociological Thought.....	...	...	801	2	10	...	...	...	...	...	...
History of Sociological Thought.....	...	...	...	...	...	802	2	12	...	...	...
History of Sociological Thought.....	...	...	...	...	...	...	...	...	803	2	8
American Sociological Theory.....	...	...	805	2	7	...	...	...	...	...	...
American Sociological Theory.....	...	...	...	...	...	806	2	9	...	...	...
American Sociological Theory.....	...	...	...	...	...	...	...	...	807	2	5
Research in Social Control.....	...	...	...	...	...	...	...	...	810	...	1
Modern Social Welfare Movements.....	...	...	811	4	10	...	...	...	...	...	...
Modern Social Welfare Movements.....	...	...	...	...	...	812	4	7	...	...	...
Graduate Seminary.....	821	2	10	821	2	24	...	...	...	...	...
Graduate Seminary.....	...	...	...	...	...	822	2	17	...	...	...
Graduate Seminary.....	...	...	...	...	...	...	...	...	823	2	15
Research in the History and Organization of Social Welfare Activities.....	...	...	...	...	...	...	...	...	826	...	3
Administration of Social Agencies.....	...	...	831	4	10	...	...	...	...	...	...
Administration of Social Agencies.....	...	...	...	...	...	832	4	9	...	...	...
Research in Social Statistics.....	...	...	841	1-3	2	841	...	...	...	...	...
Research in Social Statistics.....	...	...	...	...	...	842	1-3	8	...	...	...
Research in Social Statistics.....	...	...	...	...	...	...	...	...	843	1-3	7
Methods of Sociological Investigation.....	...	...	845	3	14	...	...	...	...	...	...
Methods of Sociological Investigation.....	...	...	...	...	...	846	3	13	...	...	...
Research in Penology.....	...	...	847	2	2	...	...	...	...	...	...
Research in Penology.....	...	...	...	...	...	848	2	2	...	...	...
Research in Penology.....	...	...	...	...	...	...	...	...	849	2	2
Research in Rural Social Institutions.....	...	...	850	...	1	...	...	...	...	...	...
SOILS											
Soil Management.....	...	...	401	5	31	401	5	36	401	5	24
Theory and Practice in Soil Management.....	...	...	601	3	11	...	...	...	...	...	...
Chemical Analysis of Soils.....	...	...	602	5	2	...	...	...	...	...	...
Origin and Classification of Soils.....	...	...	...	...	...	...	...	...	603	3	5
Physico-Chemical Analysis of Soils.....	...	...	...	...	...	604	5	5	...	...	...
Special Problems.....	...	...	701	3-15	12	...	...	...	701	3-15	3
Research in Soils.....	...	...	801	5	7	801	5	5	801	5	6
Soil Seminary.....	...	...	802	1	6	...	...	...	802	1	6
Winter Course: Soil Management.....	...	...	...	...	...	...	...	35	...	...	...
SURGERY											
General Surgery.....	...	...	602	5	75	603	5	77	604	5	77
Minor Surgery.....	...	...	...	...	...	...	...	...	601	3	20

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COURSE SUBJECT	SUMMER QUARTER			AUTUMN QUARTER			WINTER QUARTER			SPRING QUARTER		
	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections	Course No.	Credit Hours	Total No. of Students in All Sections
Gynecology .....	...	...	...	...	...	...	...	...	...	605	3	78
Orthopedic Surgery .....	...	...	...	...	...	...	606	1	60	...	...	...
Conference Clinics .....	...	...	...	607	1	60	608	1	68	609	1	58
Operative Surgery .....	...	...	...	610	1	60	610	1	60	...	...	...
HOSPITAL WARD CLINICS												
Medicine .....	...	...	...	601	...	56	602	...	60	603	...	76
Surgery .....	...	...	...	601	...	60	602	...	60	603	...	75
SURVEY OF AGRICULTURE												
Survey of Agriculture .....	...	...	...	...	3	164	...	...	...	...	...	...
SURVEY OF ARTS												
General Literature .....	...	...	...	...	...	...	501	5	16	...	...	...
Foundations of Contemporary Civilization .....	...	...	...	605	5	92	605	5	62	...	...	...
Development of Modern Science .....	...	...	...	608	5	62	608	5	143	...	...	...
SURVEY OF EDUCATION												
Introductory Survey in Education .....	...	...	...	401	1	404	...	...	...	...	...	...
SURVEY OF ENGINEERING												
Elements of Engineering .....	...	...	...	...	1	502	...	1	451	...	1	404
VETERINARY MEDICINE												
Topographic Anatomy of Domestic Animals .....	...	...	...	404	5	36	...	...	...	...	...	...
Topographic Anatomy of Domestic Animals .....	...	...	...	...	...	...	405	5	35	...	...	...
Applied Anatomy of Domestic Animals .....	...	...	...	...	...	...	407	3	28	...	...	...
Anatomy of the Horse—Part III .....	...	...	...	410	5	35	410	5	2	...	...	...
Anatomy of the Horse—Part II .....	...	...	...	...	...	...	411	5	34	411	5	1
Anatomy of the Horse—Part I .....	...	...	...	...	...	...	...	...	...	412	5	36
General Pathology .....	...	...	...	...	...	...	...	...	...	421	5	33
General Pathology .....	...	...	...	422	2	33	...	...	...	...	...	...
Special Pathology .....	...	...	...	...	...	...	423	4	29	...	...	...
Special Pathology .....	...	...	...	...	...	...	...	...	...	424	4	31
Special Pathology of Infectious Diseases .....	...	...	...	426	4	23	...	...	...	...	...	...
Meat Inspection .....	...	...	...	...	...	...	427	3	23	...	...	...
Parasitology .....	...	...	...	...	...	...	428	4	23	...	...	...
Post Mortem and Laboratory Diagnosis .....	...	...	...	430	1/2	33	...	...	...	...	...	...
Post Mortem and Laboratory Diagnosis .....	...	...	...	...	...	...	431	1/2	33	...	...	...
Post Mortem and Laboratory Diagnosis .....	...	...	...	...	...	...	...	...	...	432	1	32



Post Mortem and Laboratory Diagnosis.....	433	1/2	23	434	1/2	23	435	1	23
Post Mortem and Laboratory Diagnosis.....	436	5	36	437	5	36	438	5	36
Post Mortem and Laboratory Diagnosis.....	441	4	31	442	4	30	443	4	30
History of the Domesticated Animals.....	444	4	23	445	4	23	446	4	23
Histology.....	447	4	23	448	4	23	449	4	23
Sporadic Diseases of Large Animals.....	451	3	11	452	3	29	453	3	11
Sporadic Diseases of Large Animals.....	454	3	33	455	3	33	456	3	33
Infectious Diseases of Large Animals.....	457	4	34	458	4	34	459	4	34
Infectious Diseases of Large Animals.....	461	4	38	462	4	36	463	4	36
Agricultural Veterinary Medicine.....	464	4	31	465	4	31	466	4	31
Agricultural Veterinary Medicine.....	467	3	33	468	3	31	469	3	32
Agricultural Veterinary Medicine.....	470	3	23	471	3	23	472	3	23
Materia Medica and Therapeutics.....	473	3	36	474	4	23	475	4	23
Materia Medica and Therapeutics.....	477	1	22	478	1	22	479	1	22
Diseases of Small Animals.....	481	3	36	482	3	36	483	3	36
Diseases of Small Animals.....	485	1	22	486	1	22	487	1	22
Horseshoeing.....	488	1	22	489	1	22	490	1	22
General Surgery.....	491	1	22	492	1	22	493	1	22
Medical and Surgical Clinics.....	494	1	22	495	1	22	496	1	22
Medical and Surgical Clinics.....	497	1	22	498	1	22	499	1	22
Medical and Surgical Clinics.....	500	1	22	501	1	22	502	1	22
Medical and Surgical Clinics.....	503	1	22	504	1	22	505	1	22
Physical Diagnosis.....	506	1	22	507	1	22	508	1	22
Special Surgery.....	509	1	22	510	1	22	511	1	22
Special Surgery.....	512	1	22	513	1	22	514	1	22
Special Surgery.....	515	1	22	516	1	22	517	1	22
Operative Practice.....	518	1	22	519	1	22	520	1	22
Obstetrics.....	521	1	22	522	1	22	523	1	22
Hygiene and Sanitation.....	524	1	22	525	1	22	526	1	22
Ophthalmology.....	527	1	22	528	1	22	529	1	22
Diseases of Poultry.....	530	1	22	531	1	22	532	1	22
Veterinary Medical Jurisprudence.....	533	1	22	534	1	22	535	1	22
Pathology Technic.....	536	1	22	537	1	22	538	1	22
Special Advanced Pathology.....	539	1	22	540	1	22	541	1	22
Parasitology Technic.....	542	1	22	543	1	22	544	1	22
Special Pathology Problems.....	545	1	22	546	1	22	547	1	22
Special Parasitology Problems.....	548	1	22	549	1	22	550	1	22
Research.....	551	1	22	552	1	22	553	1	22

## VOCATIONAL EDUCATION

Principles and Methods of Teaching Commercial Subjects.....	485	3	14	486	3	14	487	3	14
Introduction to Vocational Education.....	506	2	5	507	2	5	508	2	5
Curricula for Commercial Courses.....	507	3	9	508	3	9	509	3	9
Special Methods in Vocational Teaching.....	511	2	1	512	2	1	513	2	1
Principles of Part-time Education.....	605	3	8	606	3	8	607	3	8
Principles of Commercial Education.....	606	3	36	607	3	36	608	3	36
Principles of Vocational Guidance.....	620	2-4	1	621	2-4	1	622	2-4	1
Minor Problems.....	621	2-4	1	622	2-4	1	623	2-4	1
Minor Problems.....	621	2-4	1	622	2-4	1	623	2-4	1
Major Research.....	801	3	1	802	3	1	803	3	1







# APPENDIX VI—Concluded

	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930																	
Master of Science				1							1	1	2	2	2			3	3			2	3	3	2	1								1	8	6	14	15	25	32	19	8	29	36	44	27	43	54	52	50	59	71	92																	
Master of Science (Agriculture)																		1	2		1									2	1	3	3	1																																				
Master of Science (Dom. Sc.)																													1						1																																			
Master of Science (H. F.)																					1	1	1											1																																				
Master of Science in public health																																									3																													
Master of Science in Social Admr.																																																																						
Doctor of Philosophy	1																																																																					
Doctor of Science												1																																																										
Doctor of Dental Surgery																																																																						
Doctor of Medicine																																																																						
Juris Doctor																																																																						
Bachelor of Laws																																																																						
Master of Laws																																																																						
Total	6	7	9	8	9	11	12	16	18	24	28	26	30	36	61	79	70	112	118	135	126	99	137	135	141	170	194	209	225	249	287	338	370	422	501	515	649	793	902	941	565	470	801	970	1054	1255	1382	1615	1723	1590	1755	1920	2050																	
Degrees conferred during the year																																																																						
Totals																																																																						

\* Statistics given prior to 1904 covered only the degrees granted at the Commencement.



# APPENDIX VII

## SHOWING THE NUMBER OF STUDENTS IN THE GENERAL, TECHNICAL, AND PROFESSIONAL COURSES

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	
General Courses (College of Arts) .....	137	151	194	245	256	322	327	358	371	419	439	403	490	496	490	551	572	630	714	845	865	962	
Technical Courses (other Colleges, except Law) ..	166	259	381	368	424	453	463	511	541	603	771	888	1039	1135	1129	1262	1280	1436	1626	1643	1780	1979	
Professional Courses (College of Law) .....		55	67	72	65	100	132	148	191	201	220	188	166	171	179	162	153	138	132	181	170	185	
*Graduate Students and Summer School .....	2				1		94	97	133	75	45	51	49	62	108	54	240	339	379	458	96	70	97
**Summer School (Shopwork) .....															74	75	81	80	90	606	617	738	
Lake Laboratory (Summer) .....												19			23	32	26	19	26	32	36	22	28
Winter Courses .....																					159	183	273
Total .....	305	465	642	686	745	969	1009	1150	1178	1268	1481	1547	1757	1933	1958	2316	2444	2689	3052	3566	3707	4262	
Names counted twice .....																159	167	216	258	291	268	334	
Net total .....																2157	2277	2473	2794	3275	3439	3928	

## APPENDIX VII—Concluded

	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
General Courses (Colleges of Arts, Commerce and Journalism, and Education).....	1009	1139	1494	1820	2198	2220	2558	3422	3802	4147	4493	5153	5519	5588	5926	6418	6646	6585
Technical Courses (Other Colleges Except Dentistry, Homeopathic Medicine, Law, and Medicine).....	2106	2392	2373	2491	2398	1884	2129	2733	3003	2982	2878	2791	2831	2416	2767	2545	2522	3043
Professional Courses (Colleges of Dentistry, Homeopathic Medicine, Law, and Medicine).....	198	187	615	556	514	384	300	718	611	688	724	766	830	1189	876	1214	1223	846
Graduate Courses (Graduate School).....	128	133	185	244	233	161	143	208	269	382	488	594	743	770	856	1045	1113	1342
Summer Session.....	575	671	926	1010	1166	918	909	1229	1391	1543	1925	2404	2724	2807	2760	3049	3461	3828
Lake Laboratory (Summer).....	25	32	14	19	15	14	2	11	18	19	17	15	21	19	29	31	43	43
Winter Courses.....	227	203	187	173	187	119	121	178	86	121	87	76	81	73	211	112	111	868
Extension Course in Vocational Education.....	....	....	....	....	....	....	....	....	....	....	....	....	75	59	181	....	....	....
Extension Course in Commerce and Journalism.....	....	....	....	....	....	....	....	....	....	....	....	....	....	295	546	879	746	647
Total.....	4268	4757	5794	6313	6711	5700	6162	8499	9180	9882	10612	11799	12824	13216	14152	15293	15865	16702
Names counted twice.....	299	322	462	491	523	550	437	682	867	1032	1117	1311	1289	1131	1129	1368	1462	1560
Net Total.....	3969	4435	5332	5822	6188	5150	5725	7817	8313	8850	9495	10488	11535	12085	13023	13925	14403	15142

\* Until 1896 graduate students have been included in the first three classes.

\*\* Until 1904 summer term students in shopwork have been included with graduate students.

† The teaching of Homeopathic Medicine in this University was discontinued on and after August 15, 1922.

## APPENDIX VIII

### DEGREES AND CERTIFICATES GRANTED DURING YEAR 1929-1930

#### SUMMER QUARTER 1929

##### GRADUATE SCHOOL

Dean: WILLIAM MCPHERSON

##### DOCTOR OF PHILOSOPHY

Henry J. Arnold, A.B. (University of Nebraska); M.A. (State University of Iowa).....	Springfield
Earl Edson Beard, B.Sc. in Edu., M.A.....	Portage
Elsworth Vachel Bowers, Ph.B. (Otterbein College); M.A.....	Westerville
Raymond Lanson Carter, B.S., M.A. (University of the City of Toledo).....	Toledo
Ralph Emerson Dunford, B.A., M.A.....	Amanda
Clifford Otis Eddy, B.A., B.Sc. in Edu., M.Sc.....	Clemson College, S. C.
Frank Roy Elliott, B.S., M.S. (Earlham College).....	Richmond, Ind.
Lela Arminda Ewers, B.Sc. in Edu., B.A., M.Sc.....	Fredericktown
Orvis Carl Irwin, A.B. (Baldwin-Wallace College); A.M. (Columbia University).....	Bedford
Minnie May Johnson, B.S. in Edu. (Ohio University); M.Sc.....	McConnelsville
Ruth Virginia Johnson, B.A., B.Sc. in Edu., M.A.....	Columbus
Alvhh Ray Lauer, B.A. (McPherson College); M.A. (State University of Iowa).....	Columbus
James Bryant Mack, A.B. (Syracuse University); M.A. (The University of Kansas).....	Columbus
Maryan Piotr Matuszak, A.B. (Lebanon Valley College); M.A.....	Hyde Park, Pa.
Robert Oswald Roseler, (University of Powen, Germany).....	Columbus
John Thomas Seaton, Jr., B.S. in Edu. (Miami University); M.A.....	Columbus
Charles William Shull, B.A. (Ohio Wesleyan University); M.A.....	Delaware
Warren Poppino Spencer, B.A. (The College of Wooster); M.Sc.....	Wooster
Daniel Eugene Strain, A. B. (DePauw University); M.A.....	Greencastle, Ind.
Benjamin Finley Timmons, A.B. (Ohio University); M.A.....	Columbus
Mabel Gregory Walker, A.B., A.M. (University of Illinois).....	Columbus
Robert James Wherry, B.Sc. in Edu., M.A.....	Columbus
(Twenty-two candidates)	

##### MASTER OF ARTS

E. Venita Amsler, B.Sc. in Edu.....	Columbus
Frederick Calvin Ault, B.A.....	Columbus
Dorothy Jane Bardo, B.A., B.Sc. in Edu.....	Toldeo
Arthur Lyman Bascom, B.Sc. in Edu.....	Warren
Frank John Batterson, A.B. (Ohio University).....	Defiance
John J. Beall, A.B. (Heidelberg College).....	Delta
Frederick George Bittikofer, A.B. (Heidelberg College).....	Marysville
Robert Lee Blair, B.A.....	Mt. Vernon
Walton Boyd Bliss, A. B. (Heidelberg College).....	Columbus
Howard Gilmore Boren, B.S. (Grove City College).....	Hubbard
Mabel Gladys Brown, Ph.B. (The College of Wooster).....	Columbus
Thomas Marion Buck, B.A. (Muskingum College).....	Delaware
Werner Elmer Buker, B.A. (Muskingum College).....	Adamsville
Edwin Sharp Burdell.....	Columbus
Gwendolyn Edith Cadley, B.Sc. in Edu., B.A.....	Columbus
Everett Lewis Cattell, A.B. (Marion College).....	Columbus
Mary Edra Champe, B.Sc. in Edu.....	Columbus
William Clifton Coleman, B.A. (Wittenberg College).....	Columbus
Arno Max Cooks, A.B. (Baldwin-Wallace College).....	Cleveland
Lester Loy Cooperrider, A.B. (Capital University).....	Petersburg, W. Va.
Robert Martin Crausaz, A.B. (Ohio Northern University).....	Ada
Virgil Homer Dassel, A.B. in Com. (Ohio University).....	New Lexington
Thomas Elliott Davey, Jr., B.A.....	Kent



Thelma Mae Deacon, A.B. (Cedarville College)	Xenia
Elaine Juanita Dean, A.B. (Howard University)	Pittsburgh, Pa.
Vaughn Russell DeLong, B.A. (Ohio Wesleyan University)	Columbus
Dorothy Rose Disher, B.A. (Ohio Wesleyan University)	Whitehouse
James Floyd Dixon, A.B. (Rio Grande College)	Worthington
Wilson Randle Dumble, B.Sc. in Edu.	Marion
Edgar Philip Ebert, A.B. (Capital University)	Columbus
Walter Arthur Edwards, B.A.	Columbus
Robert William Emmert, B.S. (Capital University)	Marysville
Robert Mark Estrich, A.B. (Ohio University)	Edon
Solomon David Evans, A.B. (Rio Grande College)	Gallia
Reina Merle Eyman, B.E.	Lancaster
Walter Glenn Findley, B.A. (Muskingum College)	New Philadelphia
Herbert Jesse Finsterwald, B.S. in Edu. (Ohio University)	Columbus
Rosalia Clare Fischer, B.Sc. in Edu.	Columbus
Nellis Hartley Fisher, B.A.	Columbus
Rolland Floyd Flory, B.A. (Manchester College)	Sinking Spring
Katherine Sarah Fossett, B.Sc. in Edu.	Columbus
Enid Boothe Francis, B.S. (North Texas State Teachers College)	Arlington, Tex.
Dewey Thomas Fuller, B.Sc. in Edu. (Bowling Green State Normal College)	Dunbridge
Hayden Shelley Garber, B.A. (Ashland College)	Ashland
Elizabeth Diantha Gelvin, B.Sc. in Edu.	Kinsman
Gertrude Gibbons, B.S. (Allegheny College)	Bellaire
Nettie Nora Goodman, A.B. (Otterbein College)	Akron
Regina Elizabeth Hanway, B.Sc. in Edu.	Columbus
Frank Norton Harsh, B.Sc. in For.	Kent
Emmett Leroy Harshbarger, A.B. (Bluffton College)	Bluffton
Maude Isabel Hickey, B.A. (The Rice Institute)	Houston, Tex.
Charles Ward Hunsicker, A.B. (Heidelberg College)	Bloomville
Geraldine Edith Jackson, B.A. (Wilberforce University)	Wilberforce
Herschel Morningstar Jobes, A.B. (Manchester College)	Pittsburg
Earl Boynton Kellmer, A.B. (Western Reserve University)	Wellington
William Andrew Lafferty, B.S. (Mount Union College)	Alliance
Edgar Earl Leidy, B.S. in Edu. (Bowling Green State Normal College)	North Baltimore
Jacob Wesley Lotz, A.B. (Central Wesleyan College)	Chillicothe
Elizabeth McCarroll, B.A. (Mills College)	Columbus
Charles Raymond McClure, A.B. (Maryville College)	Lakewood, N. Y.
Howard Miller McGowan, A.B. (Hiram College)	Mantua
Glady's Marie McKenney, B.A. (Saint Mary of the Woods College)	Fremont
Elsie Mae McKibben, B.S. in S. S. (State University of Iowa)	Marshalltown, Ia.
Adda L. Katzenbach Maccombs, A.B. (Ohio University)	Nelsonville
Kathryn Isabell Mansell, A.B. (Bethany College)	Cleveland
William McKinley Marshall, B.S. in Chem. Eng. (Ohio Northern University)	Amherst
Kenneth Justus Martin, Ph.B. (Denison University)	Mt. Vernon
Florentina Mathias, B.A., B.Sc. in Edu.	Chillicothe
Charles Cushing Bailey Mayer, A.B., B.S. (Ohio University)	Columbus
Allen Leymoine Meyer, B.Sc. in Bus. Adm.	Columbus
Lorenz August Meyer, B.S. in Edu. (Kansas State Teachers College)	Ellinwood, Kan.
Theodore Ralph Meyers, B.A.	Cincinnati
Nathan Lindley Michener, A.B. (University of Nebraska)	Delta
William Henry Mustard, B.S. (Antioch College)	Lafayette
Jaya Prakash Narayan, B.A.	Patna, Bihar, India
Ivy Faye Neds, A.B. (Defiance College)	Columbus
G. Byerla Newton, B.S. (Muskingum College)	Columbus
Clarence Edgar Northrup, B.A.	Columbus
Nelle Marie Oesterle, B.Sc. in Edu.	Ashville
Homer Samuel Paisley, B.S. (The College of Wooster)	Otsego
Maxwell Jerome Papurt, B.Sc. in Edu.	East Cleveland
John Paynter, A.B. (Rio Grande College)	Butler
Merle Patrea Rader, B.Sc. in Edu.	Circleville
Emil August Rickert, B.A. (Capital University)	Columbus
Carrie May Rife, A.B. (Cedarville College)	Cedarville
Donald Wehr Riley, A.B. (Miami University)	Hamilton

Hazel Isabel Ross, B.Sc. in Edu.	Columbus
Emma Florence Rothhar, A.B. (Defiance College)	Sherwood
Elton Augustus Scamman, A.B. (Oberlin College)	Avon
Harry Edwin Schwall, B.A.	Wauseon
Aurelius Southall Scott, A.B. (Morehouse College)	Chesterville
Grover Thomas Shepherd, B.A. (The University of the City of Toledo)	Curtice
William Lawrence Shuman, B.A.	Mayfield Heights
Lynn Albert Sprague, A.B. (Baldwin-Wallace College)	Hubbard
Jessie Dowd Stafford, B.A. (University of Toronto)	Toledo
William David Stoner, B.S. in Ind. Edu. (Miami University)	Oxford
David Homer Sutton, B.Sc. in Edu. (Muskingum College)	Stafford
Forrest Damon Swigart, B.Sc. (Denison University)	Celina
David Henry Thomas, B.S. (Ohio Wesleyan University)	Radnor
Torrance Harold Thrush, A.B. (Adrian College)	Croton
James Watson Tidd, B.S. in Edu. (Kent State Normal College)	Kent
Margaret Gwendolyn Turney, B.Sc. in Edu.	Gahanna
Florence Frances Turowsky, B.Sc. in Edu.	Youngstown
Paul Hawkins Underhill, A.B. (Earlham College)	Hicksville
Clifford LeRoy Walke, A.B. (Bluffton College)	Hamilton
Nell Caroline Warman, B.Sc. in Edu.	Wichita Falls, Tex.
Earl Everett Warner, B.A. (Ohio Wesleyan University)	Delaware
Rodney Johnson Warner, B.Sc. in Edu.	Osborn
Lloyd Wellington Webb, A.B. (Hiram College)	Cleveland
Ardo Leland Whisler, A.B. (Findlay College)	Findlay
Arthur Elmer Whitenack, B.Sc. in Edu.	Edenton
Helen Adele Witherspoon, B.Sc. in Edu.	Detroit, Mich.
Warner Burhl Worthing, B.A. (Muskingum College)	Birds Run

(One hundred and thirteen candidates)

## MASTER OF SCIENCE

Charles Alfred Barker, B.Sc. in Edu.	Dayton
Allen Henry Bauer, B.S. (Otterbein College)	Batavia
Albert Wesley Boetticher, B.S. in Edu. (Ohio University)	Athens
George Frederic Copp, B.A.	West Alexandria
Merrill Maughan Darley, B.S. (Agricultural College of Utah)	Wellsville, Utah
Sanford F. Essig, B.S. (Ashland College)	Louisville
Arthur William Fleming, B.E. Physics.	Columbus
John Alexander Cassidy Hamill, B.A.	Cleveland
Frank Orlando Hazard, A.B. (Wilmington College)	Wilmington
Ernest Jay Hopkins, B.Sc. in Agr.	Wooster
Ming Tan Hsieh, B.Sc. (Virginia Military Institute)	Anyo, Szechuen, China
Ralph Rae MacLaughlin, B.E.E.	Toledo
Ica Marks, B.Edu. (Eastern Illinois State Teachers College)	Charleston, Ill.
Alvina W. Mattison, B.Sc. in Edu.	Toledo
Kenneth Lewis Metcalf, B.S. (Valparaiso University)	Middleport, N. Y.
Ernestine Hunter Miller, B.Sc. in H.E.	Columbus
Frank W. Pote, B.S. (Rose Polytechnic Institute)	Medford, Mass.
John Harrison Rietz, D.V.M.	Morgantown, W. Va.
Olive Ruth Sands, B.A.	Columbus
Dorothy DeLong Scott, B.Sc. in Edu.	Westerville
Raymond William Sears, B.A. (Ohio Wesleyan University)	Cambridge
Donald Hamilton Sheffield, B.A. (Carleton College)	Springfield, Minn.
Ewart Carl Shreve, B.C.E.	Tallmadge
Arthur John Stratton, B.S. (Earlham College)	Flushing
Wilbur Metellus Tidd, B.A.	Alger
Orville Claire Woodyard, B.A.	Columbus
Kenneth Elmer Wright, B.Sc. in Agr.	Columbus
George Zinzalian, B.Ch.E.	Columbus

(Twenty-eight candidates)



## CANDIDATES FOR TWO DEGREES

Anastasia Luke Mircheff.....	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Esther Eleanor Naujoks.....	Cleveland
Bachelor of Arts	
Bachelor of Science in Education	
Henrietta Nichols.....	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Michael Edward Zupko.....	Youngstown
Bachelor of Arts	
Bachelor of Science in Education	

(Four candidates)

## COLLEGE OF AGRICULTURE

Acting Dean: HERSCHEL W. NISONGER

BACHELOR OF SCIENCE  
IN AGRICULTURE

Harold Clinton Ford.....	Cleveland
Joseph Langdon Green.....	Franklin
Thomas Murray Janes.....	Pennsville
William Wendell Miller.....	Columbus
John Claire Swinehart.....	Orrville

(Five candidates)

BACHELOR OF SCIENCE  
IN HOME ECONOMICS

Eileen Thelma Bemiller.....	Lancaster
Anna Elizabeth Camp.....	Garrettsville
Martha Elizabeth Darrah.....	Bellaire
Charlotte Lakin Dawson.....	Yellow Springs
Katharyn Martha DeWees.....	Barnesville
Amy Agnes Driver.....	Meadville, Pa.
Edith M. Heidlebaugh.....	Vaughnsville
Ruth Ellen Kraft.....	Circleville
Margaret Pogue Lemmon.....	Smithfield
Ether Amelia McConkey.....	Springfield
Mildred Kathryn Pfau.....	Portsmouth
Ruth Rogers.....	Marietta
Lauretta Elizabeth Schweitzer.....	Cleveland
Margery Jeanette Steiner.....	Pandora
Anne Marguerite Wolff.....	Cincinnati
Ruth Jane Yauger.....	Mt. Vernon
Mary Zehner.....	Lawrenceville, Ind.

(Seventeen candidates)

## COLLEGE OF LIBERAL ARTS

Acting Dean: CARL F. WITKE

## BACHELOR OF ARTS

Paul William Albert.....	Kenton
Jean Virginia Beatty.....	Bowling Green
Glenn Parrish Beavers.....	Decatur, Ind.
Richard Altstaetter Belford.....	Rocky River
Ruth Boetcher.....	Alliance
Andrew Harry Callaway.....	Charleston, W. Va.
Louise Grace Campbell.....	Youngstown
Agnes Lucile Cherry.....	Columbus
Arthur Joseph Connor.....	Columbus
Francis Harvey Deter.....	Girard

Fern Lucinda Dickey.....	Toledo
Gladys Larew Doty.....	Portsmouth
George Jerome Edam.....	Lakewood
Carl Adolph Eversman, B.Sc. in Edu.....	New Knoxville
Robert John Fair.....	Ottumwa, Ia.
Joseph Isaac Feldman.....	Cleveland
Harold Morse Fellows.....	London
Mary Bowen Fischer.....	Columbus
Alice May Gerding, B.Sc. in Edu.....	Pemberville
Stanley Webb Goodrich.....	Troy
Sarah Frances Gorski.....	Plymouth, Pa.
Mary Mildred Grau.....	Bucyrus
George Richard Greenbank.....	Piqua
Michael Harry Holliday.....	East Youngstown
Honora Elizabeth Jacob (with honors).....	Norwood
Alma Jagsch (with honors).....	Columbus
Robert Arthur Johnson.....	Columbus
Ablon Arnold Kippen.....	East Cleveland
Luella Knowlton.....	Columbus
Walter Anton Koehler.....	Cincinnati
Harold Wheeler Kramer.....	Mansfield
Edward Olin Ladd.....	Fremont
Max Levy.....	Cleveland
William Ralph MacDonald.....	Lakewood
Dorothy Virginia Martin.....	Columbus
Nancy Jane Mason.....	Columbus
Ching Tien Miao.....	Washington, D. C.
*Anastasia Luke Mirecheff.....	Columbus
Charles Albert Naugle.....	Dayton
*Esther Eleanor Naujoks.....	Cleveland
*Henrietta Nichols.....	Columbus
Joseph Anthony Orsino.....	East Cleveland
George Donald Philippbar.....	Cleveland
Francis Rall Pierce.....	Columbus
Edward Lawrence Pross, B.Sc. in Edu.....	Chillicothe
Leo Raskowski.....	Cleveland
David Michael Rein.....	Cleveland
Ralph George Rohner.....	Columbus
Lester Louis Roth.....	Cleveland
Catherine Berg Semans.....	Columbus
Caroline Simpler.....	Columbus
William Clyde Simpson.....	Parnassus, Pa.
Rudolph August Styblo.....	Cleveland
Bertram Samuel Surnamer.....	Paterson, N. J.
William Burl Thomas.....	Prospect
Helen Van Orsdall.....	Columbus
John Herbert Watlington.....	Columbus
Theodore Weaver.....	Indianapolis, Ind.
David Brooks Westwater.....	Columbus
Grace Bumer Yohe.....	Girard
Robert Cassidy Yohe.....	Canton
Luther Oman Young.....	Groveport
*Michael Edward Zupko.....	Youngstown

(Sixty-three candidates)

## COLLEGE OF COMMERCE AND ADMINISTRATION

Dean: WALTER C. WEIDLER

BACHELOR OF SCIENCE  
IN BUSINESS ADMINISTRATION

Robert Allen Barnhart.....	Chillicothe
Vincent Paul Blair.....	Middletown

\* Two degrees



Robert Plum Brunson	.....	Toledo
Clarence Cowles	.....	Cleveland
Charles Randolph Darnell (as of Class of June 1929)	.....	Cincinnati
Mary Elizabeth Devaney	.....	Columbus
Richard William Gleason	.....	Amherst
Harry Richard Horvitz	.....	Cleveland
Toivo Oscar Huhta	.....	Ashtabula
Cecil Isaac Jones	.....	Youngstown
Edwyn Theodore Kauffman	.....	Osborn
Alfred William Lane	.....	Columbus
John Kenneth Long	.....	Ironton
Francis Vitalis Manier	.....	Versailles
William Jennings Moore	.....	Columbus
Lowell Grant Northrup	.....	Toledo
Gertrude Ostendorf	.....	Cleveland
Howard Oscar Peters	.....	Columbus
John Julius Regner	.....	Columbus
Gertrude Nanette Seifer, B.A.	.....	Dayton
William Lawrence Stocklin, Jr.	.....	Chillicothe
Charles Graham Walker	.....	Columbus
Don Chamberlin Woodley	.....	Toledo
Gerald Alfred-Burton Woodley	.....	Columbus
(Twenty-four candidates)		

#### BACHELOR OF SCIENCE IN JOURNALISM

Paul Eugene Ackerman	.....	Dayton
Myron M. Lebensberger	.....	Springfield
Emmett William Millholland	.....	Columbus
George Siglin Pyle	.....	Kenton
(Four candidates)		

#### BACHELOR OF SCIENCE IN SOCIAL ADMINISTRATION

Arthur Herbert German	.....	Westerville
Janet Carolyn Rothschild	.....	Memphis, Tenn.
Helen Rosalie Windmiller	.....	Columbus
(Three candidates)		

### COLLEGE OF EDUCATION

Dean: GEORGE FREDERICK ARPS

#### BACHELOR OF SCIENCE IN EDUCATION

Beatrice Oleta Aduddell, B.A.	.....	Columbus
Celia Jean Allen	.....	Cleveland
Asa Chester Allison	.....	McArthur
Flora Marie August	.....	Steubenville
Belva Elnora Baker	.....	Kinsman
Mary McKee Biggs	.....	Mt. Liberty
Waldo Emerson Blake	.....	Areadia
Ralph Evlin Blauvelt	.....	Leipsic
Leota Fay Bopes	.....	Columbus
Helen May Boyer	.....	Washington C. H.
Nelle May Brumelle	.....	Columbus
Dorothy Grace Buckley, B.A. (Ohio Wesleyan University)	.....	Marion
Helen Spaugh Cantrell	.....	Columbus
Alice Josephine Cantwell, B.A.	.....	Worthington
Milton William Carey	.....	Sidney
Margaret Chatterjee	.....	Yellow Springs
Winifrede Gibbs Clarke	.....	Racine

Harriet Lenore Cruik	Lancaster
Mary Alice Davidson	Columbus
Erna Nelle Dewald	Cleveland
Carl Frederick Doebler	Middletown
Mary Elizabeth Dunbar	Chillicothe
Margaret Katherine Elam	Ironton
Kathryn Anne Engelhard	Columbus
Marion Edna Esler	Elyria
William Joseph Faller	Columbus
Dorothy Anne Fankhauser	Dalton
Kenneth Frederick Faulhaber	Edon
Muriel F. Findley	Piqua
Gaython Simon Flickinger	Edon
Martha Louise Freshour	Piqua
Arthur Ray Gaffga	Cleveland
Edna Shockey Garrette	Columbus
Eloise Elizabeth Gist	Edison
Goldye Jean Goldman	Auburn, N. Y.
Ora Lee Grace	Linworth
Virgil Otis Green	Columbus
Eleanor Kathryn Harper	Cincinnati
Jessie Lydia Hickok	Kingsville
Harold Bruce Hill	Columbus
Herbert Howard Hutchinson	Columbus
Glen Richard Immel	North Lewisburg
Grace Frazer Jackson	Columbus
Mary Gwendolyn Jenkins	Oak Hill
Nora Kennedy	Youngstown
Waldo Jacob Kindig	Napoleon
Louise Dodge Kirkendall	Columbus
Luella Irene Lamb	Malta
Zana Marguerite Lange	Salineville
Josephine Alberta Lind	Columbus
Ruby Lenore MacMahan	Tiffin
Joseph Raymond Meara	Columbus
Cheryl Dorothy Miller	Cardington
Josephine Henrietta Minch	Marietta
Mary Kathryn Mink	Columbus
*Anastasia Luke Mircheff	Columbus
Diego Donaldson Montoya	Columbus
Duna Ellen Moore	Frazeyburg
Lillian Russell Moore	East Orwell
Mary Stevenson Morehart	Columbus
Goldie Gertrude Myers	Wren
*Esther Eleanor Naujoks	Cleveland
Alice Irene Neill	Alliance
Gertrude Myrtle Nevison	Ashtabula
*Henrietta Nichols	Columbus
Neola Marguerite Patterson	Lakewood
Kathryn Elizabeth Petrie	Toledo
Edward Kingsley Povenmire	Columbus
Jane Eloise Povenmire	Columbus
Nelle Martha Ringler	Wellington
Ethel L. Sanders	Columbus
Lester Earl Seitz	Commercial Point
Herman Leroy Shibler	Milford Center
Florence Elizabeth Shoemaker	Columbus
Annabelle Rosalyn Skuller	Columbus
Don Wesley Smith	Fremont
Frederick Horace Smith	Lorain
Ora Ellsworth Smith	Ashville
Ortha Alice Smith	West Toledo
Zulema Frances Stacy	Columbus



Mary Theora Stone .....	Pataskala
Angelo Lawrence Strabley .....	Warren
Opal Olive Stuller .....	Dresden
Ethel Elizabeth Thompson .....	London
Marjorie Clare Tyler .....	Cecil
Kathleen Olive Tyson .....	Columbus
Lillian Myrtle Vande Water .....	Toledo
John Albright Warner .....	Camp Chase
Maude Edith Webster .....	Mechanicsburg
Mary Alice Wiest .....	Harpster
Paulyne June Wollam, B.A. ....	Columbus
Dorothy Irene Woodborne .....	Uhrichsville
Elsie Ellen Wright .....	Cleveland
Anna Florence Ziskind .....	Columbus
*Michael Edward Zupko .....	Youngstown

\* Two degrees.

(Ninety-five candidates)

### COLLEGE OF ENGINEERING

Dean: EMBURY A. HITCHCOCK

#### BACHELOR OF CIVIL ENGINEERING

Lloyd William Brenneman.....	Cleveland Heights
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(One candidate)

#### BACHELOR OF ELECTRICAL ENGINEERING

Victor Raymond Bambeck.....	Louisville
Paul Manly Kingcade.....	Columbus
Graydon William Trout.....	Sandusky

(Three candidates)

#### BACHELOR OF MECHANICAL ENGINEERING

Paul John Arn.....	Columbus
Donald Earl Rice.....	Columbus
Ellwood Glenn Soash.....	Bowling Green

(Three candidates)

#### BACHELOR OF METALLURGICAL ENGINEERING

Hubert Arthur Grove.....	Columbus
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(One candidate)

### COLLEGE OF MEDICINE

Dean: JOHN H. J. UPHAM

#### DOCTOR OF MEDICINE

William Richard Griffin, B.A.....	Pataskala
George Philip Naum, B.A.....	Columbus
John Ellsworth Roberts.....	Seaman

(Three candidates)

## AUTUMN QUARTER

### GRADUATE SCHOOL

Dean: WILLIAM MCPHERSON

#### DOCTOR OF PHILOSOPHY

Roy Oren Billett, B.Sc. in Edu., M.A.....	Columbus
Rollin Francis Conaway, B.A., M.A.....	Crooksville
Robert Wallace Gerdel, B.S. (Michigan Agricultural College).....	Wooster
John Stanley Gray, B.A. (Muskingum College); A.M. (University of Michigan)....	New Concord

William Archie Hammond, A.B. (Miami University); M.A.....	Columbus
Robert Casad Hockett, B.A., M.A.....	Worthington
William John McNiff, A.B. (Dartmouth College); A.M. (University of Michigan)	Ann Arbor, Mich.
(Seven candidates)	

## MASTER OF ARTS

Mansfield Jesse Almack, A.B. (Mount Union College).....	Columbus
Mary Edmunds Barnhill, A.B. in Edu. (University of Kentucky).....	Glasgow, Ky.
Mary Vernace Bean, A.B. (Ohio University).....	Newcomerstown
Charles Cicero Clark, B.Ch.E.....	Columbus
Kitty Cooper, B.A. (Ohio Wesleyan University).....	Columbus
Lorna Doone Dixon, B.Edu. (Eastern Illinois State Teachers College).....	Charleston, Ill.
Frank Gale Foote, B.A. (Ohio Wesleyan University).....	Delaware
William Guy Halley, A.B. (Baldwin-Wallace College).....	Zanesfield
Edith Emily Humphrey, A.B. (Ohio University).....	Hockingport
Ada V. Hyatt, B.S. in Edu. (Kent State Normal College).....	Killbuck
Octavia Roberta Jones, B.Sc. in Edu.....	Columbus
Alice Elizabeth Keesor, B.S. (State College for Teachers).....	Barnesville
Ruth Dressler Kirsten, B.E., A.B. (Findlay College).....	Columbus
Franklin Weber Melkus, A.B. (Otterbein College).....	Westerville
Fred Page Neff, A.B. (St. Olaf College).....	Bucyrus
Ellen Williams Pugh, B.A. (Ohio Wesleyan University).....	Delaware
Lien Chung Wen, B.Sc. in Edu.....	Nanki, China
Byron Franklin Wenger, B.A.....	Canton
Leonard LeRoy Westler, B.A. (Ohio Wesleyan University).....	Akron
Samuel Jacob Williams, A.B. (Asbury College).....	Columbus
Jesse Carl Woodward, B.S. (Muskingum College).....	Zanesville
(Twenty-one candidates)	

## MASTER OF SCIENCE

Walter May Buchanan, B.Sc. in Agr.....	Columbus
Charlene Marie Burrell, A.B. (Mount Union College).....	Alliance
Ivor St. Clair Campbell, B.Sc. in E.E. (Ohio Northern University).....	Ada
William George Gaessler, B.Sc. in Phar.....	Ames, Ia.
Joe Wiseman Howland, B.S. (Denison University).....	Plain City
Henry Russell Moore, B.Sc. in Agr.....	Frazeysburg
Irvin Fay Reed, B.Sc. in Agr. Engr. (University of Nebraska).....	Orchard, Neb.
William Austin Squires, B.A. (University of New Brunswick).....	Fredericton, N. B., Can.
Judith Cho-Hsiu Wu, B.A.....	Peking, China
(Nine candidates)	

## CANDIDATES FOR TWO DEGREES

Rebecca Lucile Cornetet.....	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Besie Helen Hardgrove.....	Cleveland
Bachelor of Science in Education	
Certificate in Public Health Nursing	
Mary Alice Kost.....	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
(Three candidates)	

## COLLEGE OF AGRICULTURE

Dean: ALFRED VIVIAN

BACHELOR OF SCIENCE  
IN AGRICULTURE

Ralph Edwin Burdick.....	Chardon
Stephen Loper Burk.....	Harrison
Bruce Cahill.....	Peoria



Herbert James Conkle.....	Worthington
Arthur Thomas Easton.....	Franklin
Arthur Bernard Evans.....	Cedarville
John Peter Friend, Jr.....	Milford
Robert Edmund Hamilton.....	Fresno
Maurice Everett Hull.....	New Lexington
Clair Elton Jones.....	Wauseon
Roy McEowen.....	Greenville
Charles Noel Young.....	Xenia

(Twelve candidates)

BACHELOR OF SCIENCE  
IN HOME ECONOMICS

Agnes Cecilia Austin.....	Lorain
Mary Drucilla Cottrell.....	Columbus
Mary Esther Downs.....	Columbus
Margaret Mary Garman.....	Columbus
Margaret Jane Jones.....	Columbus
Anna Mabel Stewart.....	Cambridge

(Six candidates)

## COLLEGE OF ARTS AND SCIENCES

Dean: WALTER JAMES SHEPARD  
BACHELOR OF ARTS

Celia Jean Allen, B.Sc. in Edu. (with Honors) .....	Cleveland
Demetrio Agustin Cabarga .....	Sancti-Spiritus, Santa Clara, Cuba
Chih Mai Chen (with Honors) .....	Peking, China
Frank Brown Cooper .....	Piketon
*Rebecca Lucile Cornetet .....	Columbus
Mary Wilson Eldred .....	Princeton, Ky.
Donald Clarence Galehouse .....	Doylestown
Helen Louise Gray .....	New Lexington
Mark Edward Harmeyer .....	Toledo
Gwendolyn Hershey .....	Akron
Christine Hinshaw .....	Winchester, Ind.
Nelle Alice Johnson .....	Baltimore
John Milton Kelchner .....	St. Marys
Leslie Sherman Knecht .....	Barberton
*Mary Alice Kost .....	Columbus
Helen Wang Ma .....	Tang Shan, Chihli, China
Robert Demming Myers .....	Dayton
James Wellington Norris .....	Woodsfield
Eugene Adams Rasor .....	Columbus
Myron Hayes Rhoades .....	North Kingsville
Martha Dorothy Robertson .....	Columbus
Gerald Lee Stanley .....	Columbus
Mary Jane Strayer .....	London
Lois Luberta Toops .....	Orient
Kathleen Strother Underhill (with Honors) .....	Antwerp

(Twenty-five candidates)

## BACHELOR OF SCIENCE

Byron Eugene Neiswander, M.D. ....	Columbus
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(One candidate)

\* Two degrees.

## COLLEGE OF COMMERCE AND ADMINISTRATION

Dean: WALTER C. WEIDLER

BACHELOR OF SCIENCE  
IN BUSINESS ADMINISTRATION

Paul Kenneth Ashbaugh .....	Columbus
Kathryn Irene Bigler .....	Dover
Herbert Henry Boehler .....	Bellevue
David Lloyd Charlesworth .....	Cleveland
William Martin Corry .....	Marietta
Harold Thomas Flowers .....	South Amherst
Fred Danzie Garrington .....	Cleveland
Howard Ritter Good .....	Youngstown
Charles Ward Hart .....	Hicksville
George William Hendrix .....	Columbus
Edwin Henry Hetrick .....	Oak Harbor
Thomas David Hughes .....	Lorain
Arthur Clemons Jahn .....	Columbus
Edwin Leland Keller .....	Toledo
George William Krause .....	Lorain
Al A. Lippe .....	Cleveland
Albert Frank Mack .....	Cleveland
Arthur Hurlbut Maxwell .....	Waterford
Donald Eugene Reichelderfer (with Honors) .....	Cridersville
Frederick Lutrelle Schoenleb .....	Marysville
George Adams Van Heyde .....	Columbus
George Davis Weakley .....	Columbus
James Adair Wells .....	Beverly

(Twenty-three candidates)

BACHELOR OF SCIENCE  
IN JOURNALISM

Mildred Viola Birch .....	Salem
Joseph Melvin Koren .....	Byesville
Margaret Mary Todt .....	Cleveland

(Three candidates)

BACHELOR OF SCIENCE  
IN SOCIAL ADMINISTRATION

Bernadine Catherine Allison .....	Columbus
Clara Marie Steffen .....	Columbus

(Two candidates)

## COLLEGE OF EDUCATION

Acting Dean: BOYD H. BODE

BACHELOR OF SCIENCE  
IN EDUCATION

Vera Elizabeth Barr .....	Lancaster
David Daniel Barth, Jr. ....	Lockbourne
Emmett Bennett .....	Morrow
*Rebecca Lucile Cornetet .....	Columbus
Ruth Delora Dunning .....	Lakewood
Dwight German Felton .....	Hopewell
*Bessie Helen Hardgrove .....	Cleveland
Zeona Estelle Hatcher .....	Columbus
Josephine Ruth Jentes .....	Dover
Edna Lucetta Ketterer .....	Woodsfield
*Mary Alice Kost .....	Columbus

\* Two degrees.



Helen Virginia Lasher, B.A. ....	Rutland
Charlotte Ruth Martin .....	Springfield
Elizabeth Louise Mason .....	Circleville
Mary Francis McClure .....	Columbus
Mary Elizabeth McKittrick .....	Worthington
Harriet Alice Mitchell .....	Dormont, Pa.
Barbara Ann Moser .....	Cleveland
Martha Huntley Prentice .....	Columbus
Bertha Louise Secrest .....	Westerville
Vera Ereil Sproul .....	Arcanum
Julianette Allen Taylor .....	Akron
Nell Margaret Van Orsdall .....	Columbus
Lida Grace Wissler .....	Columbus
Grace Juanita Woodruff .....	Hebron
Charlotte Esther Woods .....	Rio Grande
Evan Elnathan Wright .....	Cleveland

(Twenty-seven candidates)

## COLLEGE OF ENGINEERING

Dean: EMBURY A. HITCHCOCK

## BACHELOR OF ARCHITECTURAL ENGINEERING

Willard Howard Armstrong .....	Columbus
Russell Oscar Luchtenberg .....	Columbus
Frederick Arthur Shuler .....	Columbus

(Three candidates)

## BACHELOR OF CERAMIC ENGINEERING

Arthur Henry Falter .....	Columbus
Treumund Walter Garve (as of Class of 1916) .....	Columbus
Wendell Albert Glick .....	Columbus
Frederick Curtis Henderson .....	Glenford
Charles Thomas Miller, A.B. (Wittenberg College) .....	Springfield
Earl Charles Petrie .....	Cedar Hurst
Charles Leonard Wilson .....	Norwood

(Seven candidates)

## BACHELOR OF CHEMICAL ENGINEERING

Mary Louise Bucher .....	Dayton
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(One candidate)

## BACHELOR OF CIVIL ENGINEERING

Charles Winsor Allen .....	Bucyrus
Elmer Elliott Buell .....	Groveport
Ely Gray Fenton .....	Warren
Thompson Forest Taylor .....	St. Paris

(Four candidates)

## BACHELOR OF ELECTRICAL ENGINEERING

Flavius Wilmer Atkinson .....	Hilliards
John William Elder .....	Columbus
Don Harvey Eyman .....	Columbus
Alfred Carl Hiser .....	Columbus
Charles Daniel Lehman .....	Columbus
Clinton Albert Petry .....	Hamilton

(Six candidates)

## BACHELOR OF ENGINEERING PHYSICS

Rowland Polk Norton .....	Nashville, Tenn.
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(One candidate)

## BACHELOR OF INDUSTRIAL ENGINEERING

Lloyd Scott Higley .....	East Cleveland
Eugene Doller Kiinzler .....	Put-in-Bay
Robert Ford Taylor .....	Vineland, N. J.
(Three candidates)	

## BACHELOR OF MECHANICAL ENGINEERING

Ellsworth Andrew Bowers .....	Toledo
(One candidate)	

## COLLEGE OF MEDICINE

Dean: JOHN H. J. UPHAM

## CERTIFICATE IN PUBLIC HEALTH NURSING

*Bessie Helen Hardgrove, R.N. ....	Cleveland
* Two degrees.	

(One candidate)

## COLLEGE OF PHARMACY

Dean: CLAIR ALBERT DYE

BACHELOR OF SCIENCE  
IN PHARMACY

David William Barnett, Ph.C. (Meharry Medical College) .....	Louisville, Ky.
Leo Anthony Hock, D.V.M. ....	Columbus
John Henry Luckhaupt .....	Columbus
(Three candidates)	

## WINTER QUARTER

## GRADUATE SCHOOL

Acting Dean: CARL F. WITTKÉ

## DOCTOR OF PHILOSOPHY

Justin Lloyd Bussies, A. B. (Hope College) ; M.A. ....	Columbus
Rodney Cecil, B.S., M.S. (Iowa State College) .....	Columbus
Harry William Cordell, Ph.B. (Hiram College) ; A.M. (University of Chicago) ...	Pullman, Wash.
Michael Stephen Chappars, A.B. (Miami University) .....	Oxford
James Franklin Lewis, A.B. (DePauw University) ; M.A. ....	Dayton
Vincent Harmon Morris, A.B. (Oberlin College) ; M.A. ....	Wooster
Virgil Willit, A.B. (Otterbein College) ; M.A. ....	Columbus
(Six candidates)	

## MASTER OF ARTS

Hedwig Marie Bretz, B.A., B.Sc. in Edu. ....	Columbus
Fred Brown, B.A. ....	Youngstown
Marian Fern Butler, B.Sc. in Edu. ....	Chillicothe
Michael Stephen Chappars, A.B. (Miami University) .....	Oxford
Emma Jane Collins, B.A. (The College of Wooster) .....	Wooster
Evelyn Jeanette Duryea, A.B. (Taylor University) .....	Binghampton, N. Y.
Vera Bryant Harmon, A.B. (Heidelberg College) .....	Columbus
William Hobart Knight, B.S. in Edu. (Kent State College) .....	Rock Creek
Viola Knoll, A.B. (Mount Union College) .....	Louisville
Elma Prudence Lybarger, A.B. (Otterbein College) .....	Nevada
Julian Maris Mavity, A.B. (Earlham College) .....	French Lick, Ind.
James Vard Melton, B.S. (Stephen F. Austin State Teachers' College) .....	Appleby, Tex.
Ray Everett Mikesell, A.B. (Ashland College) ; B.S. (Kent State College) .....	Grove City
Joe Atlee Mitten, B.Sc. in Bus. Adm. ....	Glenmont
Julia Dietz Pennington, B.S. in Edu. (Muskingum College) .....	Zanesville
Harley Hayes Smith, B.A. (Ohio Wesleyan University) .....	New Burlington
Ching Yung Tang, B.A. in Com. (Kwang Hua University) .....	West Gate, Wusih, China
George Gerhard Thielman, A.B. (Bluffton College) .....	Hepburn, Sask., Can.



Maude Carney Thomas, B.S. in Edu. (Kent Normal College).....	Cleveland
Martin Valdo Thrush, Ph.B. in Edu. (University of Chicago).....	Delaware
Philip Othel Wagner, A.B. (Rio Grande College).....	Columbus

(Twenty-one candidates)

## MASTER OF SCIENCE

John Stanley Valentine Allen, B.E. Physics.....	Painesville
Edward Major Becton, Jr., A.B. (University of Kansas).....	Palmyra, N. J.
Donald Joyce Borror, B.S. (Otterbein College).....	Columbus
Hysell Marsch Brooks, A.B. (Marietta College).....	Portsmouth
Alfred Laurence Curl, B.S. in Edu. (Miami University).....	Quincy
Lola Louise Lemley, B.Sc. in Edu.....	Columbus
Ralph Seal Paffenbarger, B.E.E., B.I.E.....	Columbus
Glenna Schlitt Pryor, B.Sc. in H.E.....	Columbus
John Megginson Russ, B.I.E.....	Columbus
Elwood Dwayn Shipley, B.E.E.....	Cambridge
Lloyd Merle Shupe, A.B. (Ohio University).....	Columbus
Claude Strother, B.S. (University of Michigan).....	Columbus
Lawrence Albert Zimmer, B.Sc. in Agr.....	Napoleon

(Thirteen candidates)

## CANDIDATE FOR TWO DEGREES

Lucille Beatrice Imlay.....	Chevy Chase, Md.
Bachelor of Arts	
Bachelor of Science in Education	

(One candidate)

## COLLEGE OF AGRICULTURE

Dean: ALFRED VIVIAN

BACHELOR OF SCIENCE  
IN AGRICULTURE

Maurice Loren Baird.....	Conneaut
Richard Heinley Baker.....	Norwalk
Hubert Otis Davis.....	Belle Valley
Ralph Willard Dean.....	East Cleveland
Charles Frederick Flickinger.....	Ridgeway
James Okley Grandstaff.....	Reinersville
Delmar Walter Hoover.....	New Waterford
Harold Huston.....	Yellow Springs
Robert Eli ah Knedler.....	East Monroe
Newton Craemer Kroeger.....	Lakewood
Alfred Royal Reighard.....	Delta
Robert William Schroer.....	Cincinnati
William Frederick Shollenbarger.....	Collinsville
Arthur Thomas Smiley.....	Cadiz
Andrew Linnet Sorensen.....	Richfield
Hubert Wilmot Starr.....	East Claridon
Joseph Edward Weiskircher.....	Martins Ferry
Russell Henry Young.....	Baltimore

(Eighteen candidates)

BACHELOR OF SCIENCE  
IN HOME ECONOMICS

Lucy Elisabeth Benbow.....	Columbus
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(One candidate)

## COLLEGE OF ARTS AND SCIENCES

Dean: WALTER J. SHEPARD

## BACHELOR OF ARTS

Charles Edward Armstrong	Adelphi
John George Arnold, Jr.	Columbus
Waldo Clifford Ault	Willshire
Mary Elizabeth Babcock	Johnstown
Edward Wasson Burd, Jr.	Martins Ferry
Opal Parker Cain	Somerset, Ky.
Clement Warren Chandler	Cleveland
Franklin Donald Cooper	Bellevue
J. Frederick Doyle	South Vienna
Merrill Wesley Everhart	Chillicothe
James Quincy Gant, Jr.	Columbus
Edward Ernst Graff	Middletown
Harold Franklin Hamilton	Columbus
Robert Albert Hare	Columbus
Charles Johnson Hazard (with Honors)	Washington C. H.
Emerson Lee Horner	Dayton
Ralph Magee Hudson	Ashtabula
Pauline Virginia Huebner	Columbus
Robert Norris Hughes	Columbus
*Lucille Beatrice Imlay	Chevy Chase, Md.
Wei-Ying Lin	Foochow, China
Lydia Jane Martin	Cleveland
Frank John Maslyk	Elyria
Paul Henry Masoner	Middletown
Carmen Thomas Miceli	Rochester, N. Y.
John Thomas Miranda	Columbus
Alice Elizabeth Moore	Bellevue
Leone Purdy Pence	Hillsboro
Virginia Ellen Powell	Columbus
Robert Burgoyne Robertson	Toledo
Clifford Clinton Sheldon	Fostoria
Robert Fullerton Shewalter	Springfield
Edward John Simon	Cleveland
Doris Duvall Smith	Columbus
Willis Lincoln Stafford	Newark
Ward Harry Stanley	Ashley
Ralph Melvin Stogdill	Columbus
John Gustav Streiffert	Ellmore
Zack Townsend, B.A.	Columbia, S. C.
Chi Kao Wang	Hunan, China
Elizabeth Amanda White, A.B.	Kilbourne
Benjamin Franklin Wills	Wellston
Ellsworth Cole Wolfspurger (with Distinction in Political Science)	Canton

(Forty-three candidates)

## COLLEGE OF COMMERCE AND ADMINISTRATION

Dean: WALTER C. WEIDLER

BACHELOR OF SCIENCE  
IN BUSINESS ADMINISTRATION

Joseph Blaha	Dillonvale
Helen Turner Crecelius	Norwalk
Harry Jacob Curran	Woodlawn, Pa.
Dorothy Enola Detrick	Columbus
Calvin Xenophon Heinlen	Columbus
Richard Cannon Higgins	Columbus

\* Two degrees.



John Burnette Hill .....	Dayton
Willard Edward Howell .....	Bellaire
George John Huhta .....	Ashtabula
Carl Delmas Jackson .....	Parkersburg, W. Va.
Charles Graham Jackson .....	Mt. Vernon
Joyce Elizabeth Joiner .....	Columbus
Harry Kendall Koepfel .....	Manchester
Forest Leonard Miller .....	Wyoming
Llewellyn Berch Porter .....	Aberdeen
Elbert Paul Roudebush .....	Goshen
Charles Joseph Stevens .....	Erie, Pa.
William Lorain Taylor .....	Columbus
Charles Henry Urban .....	Massillon
Charles Foster Warren .....	Medina
Roger Bracken Wilcox .....	Columbus

(Twenty-one candidates)

#### BACHELOR OF SCIENCE IN JOURNALISM

DeLafayette Carter .....	Wauseon
Frances McIntyre Elliott .....	Steubenville

(Two candidates)

#### BACHELOR OF SCIENCE IN SOCIAL ADMINISTRATION

Mary Isabel Sandoe .....	Columbus
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(One candidate)

### COLLEGE OF EDUCATION

Dean: GEORGE FREDERICK ARPS

#### BACHELOR OF SCIENCE IN EDUCATION

Evelyn Lucile Boggess .....	Columbus
Laura Marie Butler .....	Columbus
Lillian Wilhelmina Damsel .....	Columbus
Ruth Virginia Dye .....	Steubenville
Virginia Kathryn Gill .....	Columbus
Esther Josephine Haub .....	Columbus
*Lucille Beatrice Imlay .....	Chevy Chase, Md.
Mary Elizabeth Latham .....	Columbus
Alice Catherine Lynch .....	Toledo
Virginia Delph McCullough .....	Pittsburgh, Pa.
Charles Warren Morrow .....	Shelby
Donald Seefred Rader .....	Niles
Virginia Adelaide Ranz .....	Canfield
Mary Elizabeth Rodeheffer .....	St. Marys
Nettie Mae Smith .....	Dayton
Mildred Westfall Vale .....	Columbus
William George Young .....	Kenton

(Seventeen candidates)

#### BACHELOR OF LANDSCAPE ARCHITECTURE

Martha Belle Bohlender .....	Dayton
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(One candidate)

\* Two degrees.

## COLLEGE OF ENGINEERING

Acting Dean: WILLIAM D. TURNBULL

## BACHELOR OF ARCHITECTURE

Robert Edison Bechtol .....	Norwalk
William Herbert Kremer .....	Columbus
(Two candidates)	

## BACHELOR OF ARCHITECTURAL ENGINEERING

John Parker Garwick .....	Columbus
(One candidate)	

## BACHELOR OF CERAMIC ENGINEERING

Harold Glen Baldauf .....	Marion
(One candidate)	

## BACHELOR OF ELECTRICAL ENGINEERING

Virgil Ray Barker .....	Columbus
Lawrence Lawson White .....	Ellis
(Two candidates)	

## BACHELOR OF INDUSTRIAL ENGINEERING

Archie Ambrose Dilley .....	Cortland
Leonard Russell Ervin .....	Jeffersonville
Bruce Leroy Rogers .....	Washington, Pa.
(Three candidates)	

## COLLEGE OF PHARMACY

Dean: CLAIR A. DYE

BACHELOR OF SCIENCE  
IN PHARMACY

Florence Martha Chandler .....	Cleveland
Theodore Jay Schlonsky .....	Columbus
John Henry Seymour .....	Danville, Ill.
(Three candidates)	

## SPRING QUARTER

## GRADUATE SCHOOL

Dean: WILLIAM MCPHERSON

## DOCTOR OF PHILOSOPHY

William Alfred Ashbrook, A.B., M.A. (University of Kentucky) .....	Columbus
Clair Henry Calhoon, A.B. (Ohio University); M.A. ....	Columbus
Winston Edson Dunham, B.Sc. in Agr. (University of Vermont); M.Sc. ....	Columbus
Austin Glenmore Edison, B.S., M.S. (Antioch College) .....	Yellow Springs
Herbert Joseph Edwards, B.A., M.A. ....	Columbus
Marvin Luke Fair, A.B. (Ohio University); M.A. ....	Columbus
James Fitz-James Fullington, B.A., M.A. ....	Columbus
Foster Lee Gambrell, B.S. in Agr. (Clemson Agricultural College); M.Sc. ....	Pendleton, S. C.
Harold Vincent Gaskill, B.A., M.A. ....	Columbus
Ray Llewelyn Geddes, B.S. in Ind. Chem. (Kansas State Agricultural College); M.Sc. ....	Wellington, Kan.
Anthony George, B.A., M.Sc. ....	Columbus
Wen-Wei Huang, B.A., M.Sc. ....	Canton, China
Joseph Lyonel King, B.Sc. in Biology; M.S. (University of Illinois) .....	Cleveland
Lauren Alfred King, A.B. (Asbury College) .....	Columbus
Albert Kenneth Kurtz, A.B. (Leland Stanford Junior University) .....	Columbus
Josephine Clousing Kurtz, B.A., M.A. (University of Minnesota) .....	Columbus



Ora Neal Liming, B.S. (Wilmington College); M.Sc. ....	Bethel
Joseph Benjamin Littman, B.S. (Municipal University of Akron); M.Sc. ....	Akron
Dorothy Madeleine McGhee, B.A., M.A. (University of Minnesota) .....	Virginia, Minn.
Ralph Wilson Ogan, B.A. (Muskingum College); M.A. ....	Columbus
Thurman Stewart Peterson, B.S. (California Institute of Technology); M.Sc. ..	Hollywood, Calif.
Joseph Bernard Polivka, B.S., M.S. (University of Wisconsin) .....	Oak Harbor
Dorothy Kathryn Postle, B.Sc. in Edu., B.A., M.A. ....	Columbus
Maude Nason Powell, B.S. (Michigan State College of Agriculture and Applied Science); M.S. (Yale University) .....	Columbus
John Worthington Price, B.Sc. in Agr., M.Sc. ....	Columbus
Bernard Harvey Shoemaker, A.B. (Hope College); M.Sc. ....	Holland, Mich.
Richard Stanley Shutt, A.B. (Kenyon College); M.Sc. ....	Columbus
Ralph Joseph Slattery, B.A. (Lawrence College); M.A. ....	Appleton, Wis.
Henry Peter Thielmann, A.B. (Bluffton College); M.A. ....	Columbus
Floyd William George Von Ohlen, B.S., M.S. (University of Illinois) .....	Aurora, Ill.
Harry Grandville Walker, B.A. (Southwestern College); M.S. (Kansas State Agricultural College) .....	Columbus
Louis Augustus Weinland, B.S. (Otterbein College); M.A. ....	Westerville
Morris Emmett Wilson, B.A. (University of Minnesota); A.M. (University of Chicago) ..	Columbus
(Thirty-three candidates)	

## MASTER OF ARTS

Charles Phillips Anson, B.A. (University of Wisconsin) .....	Hamilton, Mont.
Mildred Mae Baker, B.Sc. in Edu. ....	Columbus
Gladys Warden Beddow, A.B. (West Virginia Wesleyan College) .....	Huntington, W. Va.
Herman Daniel Behrens, B.Sc. in Edu. (Kansas State Teachers College) .....	Pratt, Kan.
Isador Cyrus Benis, B.Sc. in Edu. ....	Canton
Thyra Jane BeVier, A.B. (New York State College for Teachers) .....	Hamburg, N. Y.
Dorothy Bline, B.A. (Ohio Wesleyan University) .....	Newark
Ellis O. Braught, A.B. (Fairmount College) .....	Columbus
Maxine Harriet Cohen, B.A. ....	Columbus
Marion Earle Collins, A.B. (Cedarville College) .....	Cedarville
Ada May DeWitt, B.Sc. in Edu. ....	Columbus
Vera Lucy Dickinson, B.Sc. in Edu. ....	Columbus
Harry Frederic Dietz, A.B. (Butler College) .....	Indianapolis, Ind.
John Wolfe Dougherty, B.Sc. in Econ. (University of Pennsylvania) .....	Dayton
Ether Lucile Evans, A.B. (Otterbein College) .....	Columbus
Emily Margaret Frank, A.B. (Vassar College) .....	Marion
Joseph Lewis Friedman, B.A. ....	Cleveland
Alvin Emil Henry Fritz, A.B. (Capital University) .....	Columbus
George Albert Handel, B.A. ....	Newark
Otto Alfred Hankammer, B.Sc. in Edu. (Kansas State Teachers College) .....	Pittsburg, Kan.
Millard D. Hartsook, A.B. (Rio Grande College) .....	Hilliards
Robert Bechtold Heilman, B.A. (Lafayette College) .....	Athens
Jessie Margaret Heiner, B.Sc. in Edu. ....	Columbus
Francis Warren Hibler, A.B. (Bethany College) .....	Girard
Marian Eleanor Hibler, A.B. (Bethany College) .....	Girard
Richard Charles Hildner, B.S. (The College of Wooster) .....	Pittsburgh, Pa.
Eleanor Clara Huston, B.A. ....	Sunbury
Gertrude Fisher Jacob, A.B. (Oberlin College) .....	Cleveland
Mary Alice Johnston, B.S. in Edu. (Muskingum College) .....	Salesville
Harriette Cordelia Jones, B.A. ....	Ravenna
Elnora Kautz, B.Sc. in Edu. ....	Columbus
Lydia Amelia Kirkland, B.S. in Edu. (Kent State College) .....	Washington, Pa.
John Wilbur Koch, B.A. (Park College) .....	Ravenna
Anita Barbara Koenig, B.Sc. in Edu. ....	Columbus
William Morris Kohr, A.B. (Defiance College) .....	Strasburg
Lawrence Mather Lehman, B.Sc. in Edu. ....	Grove City
Joseph Jacob Levin, B.A. (Western Reserve University) .....	Cleveland
Louis Levine, B.A. ....	Columbus
John Talmadge Long, B.Sc. in Edu. ....	Cleveland
Enid Willard Lunn, B.Sc. in Edu. ....	Columbus

Helen Wang Ma, B.A. ....	Tang Shan, Chihli, China
John Orson Marsh, B.Sc. in Edu. ....	Columbus
Stanley Smith Marzolf, A.B. (Wittenberg College) ....	Bucyrus
Edwin Shepard Miller, A.B. (Bethany College) ....	Bethany, W. Va.
Blanche Barnes Montgomery, B.A., B.Sc. in Edu. ....	Columbus
Mabel Winger Moomaw, A.B. (Manchester College) ....	Anklesvar, India
Karl Bernard Nordstrom, B.S. (Ottawa University) ....	Columbus
Thomas Kenderick Owens, A.B. (Rio Grande College) ....	Oak Hill
Arthur Zedoc Penrose, B.S. (Ohio Wesleyan University) ....	Pennsville
Anita Evelyn Phillipson, A.B. (Berea College) ....	Ashland, Ky.
Thelma Lorena Phlegar, B.A. (University of Richmond) ....	Bluefield, Va.
Helen Mary Pinkerton, A.B. (Muskingum College) ....	Pittsburgh, Pa.
Reubin Robert Pliskin ....	Akron
Robert Price, B.Ph. (Denison University) ....	Alexandria
Eugene Clifford Rea, B.A. ....	Columbus
John Donald Read, A.B. (Ashland College) ....	West Salem
Harriet Nelle Rogers, B.A. (Ohio Wesleyan University) ....	West Lafayette
John Fackler Royer, B.Sc. in Jour. ....	Columbus
Laurence Julius Schaaf, A.B. (Capital University) ....	Elmore
Mary Elizabeth Schwartz, A.B. (Western College for Women) ....	Portsmouth
Clarence Theodore Springer, B.S. in Edu. (Ohio University) ....	Mt. Vernon
Ruby Hays Stalnaker, A.B. (Ohio University) ....	Parkersburg, W. Va.
Homer Stevens, A.B. (Wittenberg College) ....	Springfield
Dallas Victoria Stone, A.B. (Mount Holyoke College) ....	Columbus
Esther Elizabeth Stroedter, B.A. ....	Columbus
Florence Frances Stroyne, B.Sc. in Edu. ....	Columbus
Walter Whittle Webb, A.B. (Mount Union College) ....	Alliance
Marjorie Lucille Weiser, B.A. ....	Marion
Charles Henry Wikoff, B.Sc. in Agr. ....	Columbus
Harrison Wells Wilder, B.S. in Com. (University of North Dakota) ....	Grand Forks, N. D.
Isabella Riggs Williams, A.B. (Miami University) ....	Oxford
Leonard George Wise, B.A. ....	Springfield
Benson Earl Workman, B.S. in Edu. (Ohio University) ....	Athens
Tung Sing Yui, B.S. (Soochow University, China) ....	Soochow, China

(Seventy-four candidates)

## MASTER OF SCIENCE

John LeBaron Arbuckle, B.I.E. ....	Columbus
Bertha Mae Baker, B.Sc. in Edu. ....	Warren
William Steel Barnhart, B.S. (Pennsylvania State College) ....	Zanesville
Victor Robinson Bergman, B.S. (The College of the City of New York) ....	New York, N. Y.
John Thomas Bigham, Jr., A.B. (Erskine College) ....	Chester, S. C.
Harry Freeman Blake, B.E.E. ....	Columbus
Arthur Avery Bowers, A.B. (Bluffton College) ....	Beaverdam
Liang Yung Cha, B.S. (Nankai University) ....	Tientsin, China
Thomas Charles Chadwick, B. Ch. E. ....	Columbus
Ray Bryan Christianson, B.S. (Brigham Young University) ....	Spanish Fork, Utah
Donald Fleshner Christy, B.Sc. in Agr. ....	Cincinnati
Donald Comin, B.S. (University of California) ....	Wooster
Raymond Edgar Cray, B.S. (Rutgers College) ....	Columbus
Harold Fred Cronenberger, B.S. (Capital University) ....	Sandusky
Henry Donald Dawson, B.S. (Denison University) ....	Columbus
Craig William Eagleson, B.S. (Iowa State College of Agriculture and Mechanic Arts) ....	Ames, Ia.
Carl Christian Hein, Jr., B.S. (Capital University) ....	Columbus
Fred Johnston Hunter, Jr. B.A. ....	Marion
Gilbert Andrew Kelley, B.Sc. in Edu. ....	New Madison
Joseph William Kohn, B.A. ....	Cleveland
Elbert Clinton Ladd, A.B. (Earlham College) ....	Columbus
Edward Gibson Locke, B.S. (Oregon Agricultural College) ....	Portland, Ore.
Ralph Michael Melaven, B.S. in Chem. Engr. (South Dakota State School of Mines)	
	Rapid City, S. D.
Joseph Harry Miller, B.A. ....	Columbus
Russell Conwell Newhouse, B.E.E. ....	Ostrander



Mildred Ratliff Newlin, A.B. (Earlham College)	Richmond, Ind.
Ernest Howard Reed, B.Sc. in Agr.	Columbus
Mary Wilhelmine Renoll, A.B. (Grove City College)	Freedonia, Pa.
Gladys Esther Robinette, B.S. in Edu. (Kent State College)	New Philadelphia
Edgar Rosino Robinson, B.E.E.	Sandusky
Walter Clarence Rueckel, B. Ce. E.	Columbus
James Clarke Sanford, B.Sc. in Agr.	Stryker
Abe Lewis Schiffer, B.A. (Western Reserve University)	Cleveland
Lewis Walter Sherman, B.Sc. (H. & F.)	Canfield
Alfred K. Silberman, B.A. (Western Reserve University)	Cleveland
Lawrence William Smith, B.Sc. in Agr.	Chagrin Falls
Maurice Donald Stahl, B.S. (Ashland College)	Savannah
Ethel Sapp Tudor, B.Sc. (Dom. Sci.)	Berea
Doris May Ufer, B.Sc. in Edu.	Stryker
Edward Nelson Warner, B.A. (Marietta College)	Columbus
Ralph Herbert Wing, B. Ch. E.	Columbus
Clarence Swanson Woodward, B.Sc. (Agr.)	Jefferson
(Forty-two candidates)	

## CANDIDATES FOR TWO DEGREES

Bernice Viola Aduddell	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Doris Aileen Agler	Columbus
Bachelor of Arts	
Bachelor of Science in Journalism	
Jeanette Archer	Columbus
Bachelor of Arts (with Honors)	
Bachelor of Science in Education	
Carl Frederick Bayer	Columbus
Bachelor of Electrical Engineering	
Bachelor of Mechanical Engineering	
Richard Miller Beer	Columbus
Bachelor of Science in Business Administration	
Bachelor of Electrical Engineering	
Marguerite Ellen Carlin	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
John Josiah Daggon	Columbus
Bachelor of Electrical Engineering	
Bachelor of Mechanical Engineering	
Ora Alice Easterday	Canton
Bachelor of Science in Education	
Certificate of Graduate Nurse	
Mildred Dolores Freshwater	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Marie Wilhelmina Geske	Dayton
Bachelor of Arts	
Bachelor of Science in Education	
Claude Theodore Hathaway	Springfield
Bachelor of Arts (with Honors)	
Bachelor of Science in Education	
Mabel S. Herd	East Liberty
Bachelor of Arts	
Bachelor of Science in Education	
Arthur Robert Knight	Delaware
Bachelor of Science in Business Administration	
Bachelor of Electrical Engineering	
Erna Amelia Lowrey	Chillicothe
Bachelor of Arts (with Honors)	
Bachelor of Science in Education	

Bernice Ruth McClelland	Columbus
Bachelor of Science in Home Economics	
Bachelor of Arts	
Ralph Clifton Paisley	Old Washington
Bachelor of Science	
Doctor of Medicine	
Ethel Louise Pence	Hillsboro
Bachelor of Arts	
Bachelor of Science in Education	
Anna Jones Reaver	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Lester Sheldon Reid	Duval
Bachelor of Arts	
Bachelor of Laws	
Vivienne Rose Richards	Columbus
Bachelor of Arts	
Bachelor of Science in Education	
Kenneth Wolf Taylor	Pickerington
Bachelor of Arts	
Doctor of Medicine	
Cecilia Helen Zarembski	Toledo
Bachelor of Arts	
Bachelor of Science in Education	
Clara Margaret Zettler	
Bachelor of Arts (with Honors)	
Bachelor of Science in Education	

(Twenty-three candidates)

## COLLEGE OF AGRICULTURE

Dean: ALFRED VIVIAN

BACHELOR OF SCIENCE  
IN AGRICULTURE

Clyde Edward Beougher	Laurelville
Arthur Robert Beyer	Berea
Stanley Corbett Bingham	New Milford
Clarence Carlton Bowen	Montpelier
Theodore Walter Bretz	Columbus
Ross Webster Brubaker	Toledo
William Henry Brug	Mt. Healthy
Reamond Eugene Card	Painesville
Glenn Stuart Carpenter	Mt. Vernon
Thomas Kyle Cowden	Hickory, Pa.
James Alton Cox	Woodsfield
Ralph Howard Davidson	Vandalia
Robert Dwight Dickey	Dresden
Virgil Zeller Diley	Canal Winchester
Joseph Leonard Dougherty	Newcomerstown
Ralph Dush	Newark
Clarence Fawcett Ellyson	Salem
Russell Warren Fairall	Newark
Albert Frank Feck	Adrian
Carl George Frische	Wapakoneta
Ralph Emerson Garver	Trotwood
Frank Abraham Giessler	Convoy
Samuel Clyde Gordon	Columbus
Galen George Groves	Caldwell
Robert Carroll Haigler	Washington C. H.
Marion Tiffin Haines	Washington C. H.
William Albert Haines	Washington C. H.
John Herbert Halderman	Tippecanoe City
Ralph Reynolds Hart	Madison



Claude Ivory Hummel	Amsden
Russell A. Hyre	Dayton
Roland Arthur Johnson	Duquesne, Pa.
Edwin Simon Judy	Laurelville
Robert William Kirk	Port Clinton
Irwin Klein	Cleveland
Charles Rea Lee	Columbus
Eldon Paul LeGrande	Oak Hill
Clyde Delfred Lyle	St. Clairsville
Theodore Augustine Lyons	Cleveland
Richard Colton Mallett	Cleveland
Richard Otis McFerren	Belle Valley
Leonard Boyd Melching	Ashland
Stephen Coleman Molnar	Toledo
Herbert Howe Morse	Willoughby
Kenneth George Nixon	Mansfield
George Washington Owen	Chilo
Dwight Louis Peugeot	Stryker
William Glenn Poe	Belle Center
Carl McClellan Poston	Columbus
Glen Wharton Pryor	Cambridge
George Lewis Quillen	Ashville
Howard Fernando Romshe	Wapakoneta
Leroy Marsh Roudebush	Harrison
Ray Pontius Sauer	West Alexandria
Russell Charles Shipman	Fayette
August Stucker	Springfield
Frank Bennett Teegardin	Duval
John Christopher Thompson	Columbus
Frank Latimer Walker	Hilliards
William Russell Walker	Hilliards
Robert Carl Wetherell	Malta
Menford Jerome Yoh	Van Wert

(Sixty-two candidates)

BACHELOR OF SCIENCE  
IN HOME ECONOMICS

Ruth Elizabeth Amos	New Matamoras
Elva Mabel Bailey	Columbus
Marian Iola Ball	Mason
Lolabel Louise Black	Lancaster
Helen Anita Clark	Columbus
Mabel Katharyn Combs	New Lexington
Ethel Frances Cosco	Columbus
Kathryn Estella Crowe	Columbus
Eleanor Barron Diltz	Columbus
Edna Ledora Disher	Waterville
Lois Eleanor Foster	Pittsburgh, Pa.
Clara Araminta Hawk	Shelby
Lo Freeda Heilman	Kenton
Anne Herman	Toledo
Ruth Emilie Hessenauer	Columbus
Julia Maria Higgins	Rome
Esther Marie Hopkins	Wooster
Verial Irene Howard	Edgerton
Cleo Lathrem	Dayton
Lois Josephine Marcy	Mt. Sterling
*Bernice Ruth McClelland	Columbus
Anne Helen McGuire	Columbus
Edith Irene McNutt	Cumberland
Stella Marvelia Mercer	Stockport
Helen Ferdilla Mettler	Laurelville

\* Two degrees.

Esther Frances Milner.....	Barnesville
Myrna Zella Nelson.....	Columbus
Helen Louise Parrett .....	Columbus
Helen Williams Peters .....	Columbus
Margaret Ruth Pool .....	Granville
Josephine Louise Postle .....	Columbus
Marjorie Evelyn Prieur .....	Bowling Green
Thelma Willene Quigley .....	Graysville
Mabel Katherine Ray .....	Ada
Mary Leota Riegel .....	Amanda
Willard Liggett Robinson .....	East Cleveland
Edwin James Shriver .....	Hilliards
Bonibel May Simmons .....	Columbus
Leona Marguerite Trout .....	Columbus
Edna Mae Tucker .....	Columbus
Jane Elliott Waddell .....	Columbus
Alma Viola Whinnery .....	Salem
Jessie Benton Wood .....	Cleveland
Estalene Alice Young .....	Columbus
Naomi June Young .....	Bremen

(Forty five candidates)

## COLLEGE OF ARTS AND SCIENCES

Dean: WALTER J. SHEPARD

## BACHELOR OF ARTS

Rose Hortense Abrahams .....	Nashville, Tenn.
*Bernice Viola Aduddell .....	Columbus
*Doris Aileen Agler .....	Columbus
Marshall Herbert Aiken .....	Columbus
Dorothy Priscilla Albaugh (with Honors) .....	Worthington
Mary Alice Allen .....	Zanesville
Theodore Clarence Allenbach .....	Columbus
Willard B. Andrus .....	Columbus
Samuel Appel .....	Paterson, N. J.
*Jeanette Archer (with Honors) .....	Columbus
James Vincent Armogida .....	Canton
Abe Arons .....	Cleveland
Forrest Blizzard Ashcraft .....	Newark
Benedict Bernard Backlay .....	Cleveland
Imogen Jones Bargar .....	Columbus
Pearl Althea Barnett .....	Milwaukee, Wis.
Kathleen Elizabeth Beach .....	Plain City
Mary Vivian Beale .....	Columbus
Lucius G. Beard .....	Toledo
John Benson .....	Columbus
Blanche Mary Berinstein .....	Elmira, N. Y.
Genevieve June Billman .....	Cuyahoga Falls
Sarah Barbara Blatt (with Honors) .....	Indianapolis, Ind.
Olin Douglas Blessing .....	Bradner
Reba Blumberg .....	Chattanooga, Tenn.
Gazelle Elizabeth Bodnar .....	Cleveland
George Peter Bohlender .....	Dayton
Betty Bonnet (with Honors) .....	Columbus
Geneva Frances Bowls .....	Oberlin
Ora Charlotte Brailey .....	Swanton
Mary Vincetta Branson .....	Cadiz
William Timothy Bresnahan .....	Columbus
Dorothy Bradfield Brice .....	Dayton
Jerome Melvin Brown .....	Barberton
Milton Warren Buffington .....	Columbus

\* Two degrees.



Daniel Sommer Bunner	Columbus
Ruth Elizabeth Burkey (with Honors)	Columbus
Robert Stanton Burns	Columbus
Catherine Cecelia Calaway	Columbus
Harry Caller	Columbus
Milton Arthur Caniff	Dayton
*Marguerite Ellen Carlin	Columbus
David Wark Carter	Springfield
Louis Paul Cassady	Dresden
Charlotte Castanien	Toledo
Margaret Allen Charters (with Honors)	Columbus
Thomas Alfred Chittenden, Jr.	Akron
Charles Koogle Clark	Columbus
Richard Sherman Clark (with Honors) (with High Distinction in French)	Erie, Pa.
Martha Collicott	Columbus
Lillian Opie Cook (with Honors)	Welch, W. Va.
Faith Margaret Cooper (with Honors)	Struthers
Mary Margaret Coy	Columbus
Roy Edward Cramer	Rawson
Margaret Lydia Daehler	Columbus
Catherine Elizabeth Daugherty	Columbus
Francis Sidney Davis	Columbus
Walter Russell Davis	Reinersville
Louise Greenlee Dean	Columbus
Alice Platt Deeg	Columbus
Jane Deborah Dennis	Columbus
George William Domhoff	Youngstown
John Edward Dunnick	Columbus
Sarah Nan Dusthimer	Zanesville
Mabel Ruth Ely (with Honors)	Columbus
Clarence Clarke Engleman (with Honors)	Kent
Donald Weldon English	Lima
Mary Pauline Evans	Cleveland
Max Evzovich	Youngstown
Marion Belle Fantle	Yankton, S. D.
James Kenneth Farrell	Columbus
Richard Paul Faulkner	Kenton
Alice Withrow Field, F.R.A.I.	New York, N. Y.
Joseph John Fink	Cleveland
Sidney Bernard Finn	Rochester, N. Y.
Helen Margaret Finnical	Cadiz
Caroline Martha Foote	Kent
Mary Elizabeth Foster	Toledo
Carl Alexander Francis	Cleveland
*Mildred Dolores Freshwater	Columbus
Ella Louise Fulton (with Honors)	Youngstown
Marjorie Marie Gabriel	Vincennes, Ind.
Doris Marie Garver	Mansfield
Lorayne Colley Geer	Cuyahoga Falls
Eunice Annetta Gentner	Columbus
*Marie Wilhelmina Geske	Dayton
Rhoda Irene Gilmore	Hamilton
Harold Marion Ginsburg (with Honors)	Marietta
Lauren Avery Glosser	Upper Sandusky
Jacob Govendo	Newark, N. J.
Harry Robert Grau	Cleveland
Robert Custis Grubbs	Uhrichsville
Robert Payne Gunning (with Honors)	Chillicothe
Mildred Lolita Hahn	Coshocton
Ellsworth Greene Harris	Columbus
Arvine Wilson Harrold	Fostoria

\* Two degrees.

Elizabeth Dean Hatcher .....	Columbus
*Claude Theodore Hathaway (with Honors) .....	Springfield
William Thomas Hayes .....	Columbus
Frank Douglas Hays .....	Columbus
Frances Catharine Heaton .....	Columbus
Sarah Edna Hebble .....	Cincinnati
Harold Arthur Henderson .....	Toledo
Charles Clement Henrie .....	Xenia
*Mabel S. Herd .....	East Liberty
William Allen Higgins .....	Columbus
Almond Eldon Hittepole .....	Wapakoneta
Edward Lawson Holmes .....	Columbus
Waudell William Hunter .....	Yellow Springs
Miriam Josephine Imboden .....	Logan
Mary Stanley Jeffers .....	Columbus
Kenneth Lee Jennings .....	Clyde
Stephen Alfonse Jonas .....	Nanticoke, Pa.
Horace Wright Jones .....	Columbus
Julia Mary Jones .....	Dayton
Maurice M. Kane .....	Columbus
Ada Marion Karam .....	Canton
Kathryn Emma Kaufman .....	Toledo
Vemont Dana Kerns .....	Circleville
Helen Adele Kessler .....	Carey
Saul Wedren Kessler .....	Cleveland
Helen Louise King .....	Columbus
Elizabeth Kingsbury .....	New Rochelle, N. Y.
Irene Elizabeth Kinley .....	Flint, Mich.
Joseph Kleinman .....	Cleveland
Raymond William Klink .....	Cheviot
Albert Kostoff .....	Columbus
Earl Lautenschleger .....	Elyria
Lillian Laura Laycock .....	Toledo
Dorothy Mary Lee .....	Dorset
Bernard Levitin .....	Columbus
Franklin Glenn Liming .....	Bethel
Cyril Eustace Lloyd .....	Columbus
Rhea Dawn Logan (with Honors) .....	Columbus
Harold Alvin Lotzoff .....	Lima
Rodney Marvin Love .....	Dayton
*Erma Amelia Lowrey (with Honors) .....	Chillicothe
James Judge MacBride .....	Columbus
Frederick Carl Machetanz .....	Kenton
Mary Annetta Magill (with Honors) .....	Columbus
Paul James Mahar .....	Youngstown
Jacob Moses Masters .....	Columbus
James Rutherford Matson, Jr. ....	Uhrichsville
Irene May Matthews .....	Mansfield
Ruth Sara McAllister .....	McKeesport, Pa.
Roberta Helena McCall .....	Youngstown
*Bernice Ruth McClelland .....	Columbus
Catherine Gertrude McGuire .....	Toledo
Russell Blair McNeill (with Distinction in Economics) .....	Kenton
Eleanor Fisher Metters .....	Columbus
Donald Raymond Metzger .....	Columbus
Mary Mildred Meyer .....	Cleveland
Robert Samuel Michael .....	Dayton
Phillip Arthur Millstone .....	Youngstown
Simon Louis Mintz .....	Cleveland
Florence Rolfe Mirick .....	Columbus
Lois Floyd Mohler .....	Fort Worth, Tex.

\* Two degrees.



Geraldine Lucille Montwid .....	Milwaukee, Wis.
Joe Milton Moorhead .....	Findlay
Joseph Theodore Morgan (with Honors) (with Distinction in English) .....	Middletown
Mary Katharine Morrow .....	Bellevue, Pa.
Celia Murov .....	Shreveport, La.
Elizabeth Monica Myers .....	Columbus
Margaret Katharine Nesbitt (with Honors) .....	Columbus
Robert Watkins Newlon .....	Columbus
James Robert Nichols .....	Columbus
Egbert William Nieman .....	Woodville
Theodore Williams Novak .....	Cleveland
Howard Jay Ohl .....	Cleveland
Charles Irving Okerbloom .....	Columbus
Louise Opal Pardee .....	Garrettsville
Gwyn A. Parry .....	Jackson
*Ethel Louise Pence .....	Hillsboro
Franklin Thomas Phillips .....	Columbus
Kenneth James Pidgeon .....	Sebring
Stanley Walter Plesko .....	Cleveland
Max M. Pomerantz .....	Cleveland
Marcy Summers Powell .....	Wellington
Clark Poston Pritchett .....	Columbus
Lucy Kathryn Rafferty .....	Napoleon
*Anna Jones Reaver .....	Columbus
Morton Young Reeves .....	Columbus
*Lester Sheldon Reid .....	Duval
Jack Wilbur Reif .....	Cincinnati
Hazel Richards .....	Columbus
Robert Rutledge Richards .....	Camp Chase
*Vivienne Rose Richards .....	Columbus
Sam Rosenfeld, Jr. ....	Columbus
Grace Catharine Rowland .....	Cadiz
Marjorie Marie Rud (with Honors) .....	Cleveland
Helen Brown Russell .....	Pomeroy
Fred Lee Schneider .....	Knoxville, Tenn.
Clayton Horn Schug .....	Bellevue
Willard Philip Scott (with Honors) .....	Columbus
Allan LaVerne Seifert .....	Orangeville
Bernice Dorothy Shapiro .....	Memphis, Tenn.
Roy Cresswell Shelton, B.S. (Wilberforce University) .....	Rossford
Martin Lazert Sherman .....	Columbus
Jacob Schwartz .....	Lowellville
Paul Robert Siegel .....	Cleveland
Michael George Sikora .....	Byesville
Jason B. Simons .....	Richwood
Lucy Manchester Sloan .....	Columbus
Elsie Belle Smith .....	Columbus
Warren Allan Smith .....	Columbus
Isadore Carl Snider .....	Cleveland
Jane Warden Steenson .....	Columbus
Helen Eloise Steiger .....	Hamilton
Myron Harry Steinberg .....	Youngstown
Ben Alvin Stillman .....	Cleveland
Ferdinand Fairfax Stone (with Honors) .....	Urbana
Robert Granville Stone .....	Yellow Springs
Alfred Harrison Tate .....	Wilberforce
*Kenneth Wolf Taylor .....	Pickerington
Lillian Alberta Teeters (with Honors) .....	Washington C. H.
James Heaven Thompson .....	Columbus
Thelma Betty Truby .....	Ironton
Yao Fang Tsou .....	Kiangsu, China

\* Two degrees.

Sarah Elizabeth Turnbaugh .....	Cambridge
Gay Robertson Turner .....	Cristobal, Canal Zone
Joseph Alexander Ujhelyi .....	Lorain
Virginia Emelyn Ullery .....	Springfield
Charles Frederick Walker .....	Columbus
Walton Elmer Wallace .....	Lima
Clyde Higgins Walters .....	Columbus
Lawrence Franklin Ware .....	Columbus
Robert Hirst Wead .....	Columbus
Leone Davis Weber .....	Columbus
Constance Felicitas Weinberger .....	Chicago, Ill.
Norman Leonard Weisman .....	Dayton
Abraham Allen Welkind .....	Bloomfield, N. J.
Thelma Edytha Westover .....	Fostoria
Catherine Leola Wiseman .....	Vinton
Martin Leonard Woehrmann .....	Bay Village
Anna Beverly Wood .....	Bluefield, W. Va.
Emerson Vernelly Wood .....	Aid
Marian Louise Wood .....	Marion
Marian Letta Wright .....	Columbus
Edmund Stanley Young .....	Columbus
*Cecilia Helen Zarembski .....	Toledo
*Clara Margaret Zettler (with Honors) .....	Columbus
Edna Blanch Ziebold .....	Columbus

(Two hundred and forty-two candidates)

## BACHELOR OF SCIENCE

Robert Wayne Helms .....	Convoy
Samuel Kamellin .....	Cleveland
Milton Auvrem Levine .....	New Boston
Tom Franklin Lewis, Jr. ....	Columbus
James William Long .....	Columbus
Chester Ray Markwood .....	Lancaster
*Ralph Clifton Paisley .....	Old Washington

(Seven candidates)

## COLLEGE OF COMMERCE AND ADMINISTRATION

Dean: WALTER C. WEIDLER

BACHELOR OF SCIENCE  
IN BUSINESS ADMINISTRATION

Lawrence Sibley Abbott .....	Columbus
Wilfred Christian Ahrens .....	Cleveland
Elden Walter Arbaugh .....	Mansfield
Jack David Baer .....	Dayton
George Howey Barnard .....	West Salem
John Robert Barrett .....	Dayton
*Richard Miller Beer .....	Columbus
Hollis Glenn Bell .....	Cambridge
Albert John Bolsinger .....	Norwood
Richard Alfred Borel .....	Erie, Pa.
Roy Gerald Bowersock .....	Haydenville
William Jay Boyer .....	Columbus
Hays Alexander 'Cape .....	Hamilton
Oscar Edmond Carlin .....	Bryan
Howard Michael Cline .....	Miamisburg
Catherine Isabel Clouse .....	East Liverpool
Harold Blume Cohen .....	Cleveland
Aubyn Bailey Cooper .....	Bellaire
Winona Margaret Cornell .....	Cleveland

\* Two degrees.



Cora Elizabeth Coy	Columbus
Willis Hutchinson Cresap	Coshoctor
Charles Alfred Cummins	Worthington
John Cordon Davis	Massillon
John Anthony Demorest	Cleveland
Lester Fettes Denton	Columbus
William Elmer Didelius (with Honors)	Sandusky
Ruth Anne Doelker	Columbus
Marjorie Charlotte Dum	Columbus
Donald Leo Dunn	Curtice
Martin Elberfeld	Pomeroy
William Epstein	Youngstown
Jack Griffith Evans	Columbus
George Melville Feiel	Columbus
Max Martin Fisher	Cleveland
Mike Fleischer	Columbus
Edward Frank Foster	Cleveland
Charles Eldon Fritter	Quaker City
Charles Jules Frye	Beaver, Pa.
Richard Lloyd Fuller (with Honors)	Portsmouth
Margaret Lawler Gallen	Columbus
Edward Frederick Geckler	Cleveland
Robert Henry Gerber	Dayton
Leonard Brower Glander	West Alexandria
Bernard Goettemoeller	St. Henry
Ruth Mildred Graf	Toledo
Theodore Emil Hart	Cleveland
Francis Keller Harvey	Kenton
Hubert Lawrence Hendrix	Columbus
Albert Ferdinand Hess	Cincinnati
Gerald Foulk Hoffman	Thurston
Frank Calvin Holbert	Dayton
Herbert Byron Hollinger	Akron
Frances Josephine Holtzman	Columbus
Heber Lawrence Howard	Elyria
Jean Caldwell Hutchison	Washington, D. C.
Walter Cooper Insley	Arcadia
Robert Wayne Irwin	Columbus
Margaret Anne Jennings	Columbus
Edward Mead Johnston	Columbus
George Arthur Jones	Washington, D. C.
John Edward Kah, Jr.	Portsmouth
Jack Wallace Kellogg	Akron
Ray Willis Kerr	Akron
Frederick Donald Ketteler	Columbus
Merlin Everett Kewish	Madison
Walter Leroy Kidd	Columbus
*Arthur Robert Knight	Delaware
Howard Alvin Knox	Salineville
Frederic E. Kuenzli	Nevada
Ira Marcus LaMoreaux	Chesterland
Walter George Lezius	Cleveland
Emil John Linek	Cleveland
Ralph Aaron Lyford	Columbus
Eugene Henry Mack	Belle Center
John Donald McNutt	Lorain
Ellsworth Alfred Moats	Waverly
James Samuel Montgomery	Deerfield
Douglas Putnam Morrison, Jr.	Wellsville
David Albert Mote	New Madison
Albert Benheart Neske	Bellefontaine
Willis A. Neuwirth	Columbus

\* Two degrees.

Winifred Ethelyn Nixon	Columbus
William Clayton Nungesser	Galion
John William O'Connell	East Liverpool
Joseph John O'Shaughnessy	Columbus
Joseph Louis Ovies	Moundsville, W. Va.
Percy Perry Parsons	Akron
Betty Peppard	Mansfield
Joe Collins Potter	Worthington
Everett Germaine Radford	Columbus
Dorothy Abigail Rayburn	Columbus
William Evan Richards	Newark
Leo William Rinehart	Millersport
Harold Stutesman Roos	Wauseon
Forest Adrian Rose	Akron
Janet Geraldine Rosenbloom	Dayton
Mabel Hester Ruehle	Columbus
Clare Gilbert Rybolt	Ashland
Louis Richard Sapp	Akron
Robert James Scheid	Eaton
Dorothy Elizabeth Schoenlaub	Columbus
Frank Seigh	Youngstown
DeVere Buel Shannon	Creston
Stuart Chandler Sherwood	Columbus
Hylas Emmett Smiley	Columbus
Richard Herman Smith (with Honors)	Sandusky
John Kirby Smucker (with Honors)	Bellefontaine
Charles Andrew Sohns	Cleveland
Robert Theodore Stephenson	Columbus
Paul Eugene Stewart	Tiffin
Edwin Rudolph Stickel	Dayton
Frank Joseph Tkach	Cleveland
Samuel Ch'eng Hsien Tung	Kwei Yang, China
Kenneth Lysle Underhill	Toledo
William Layton Van Ness	Mechanicsburg
Vaughn Rosenworth Walker	McComb
John Latimer Warren	Navarre
Nelson Philip White	Toledo
Robert William White	Salem
Harry Clyde Wirls	Cleveland
Edgar Willard Wolfe	Columbus
Richard Stanton Wolfe	Columbus
Thomas En-Chien Yeh	Amoy, China
James Carleton Yocum	Massillon
Burton Zook	Akron

(One hundred and twenty-five candidates)

#### BACHELOR OF SCIENCE IN JOURNALISM

*Doris Aileen Agler	Columbus
Hubert Oscar Auburn, Jr.	Mt. Healthy
George Francis Barnes	Marietta
Lester John Biederman	Columbus
John Edward Callahan	Columbus
Charles Frederick Carson	Toledo
Marion O. Chenoweth	Marion
Bernard William Dornbirer	Columbus
Hortense Herman	Sandusky
Jeanne Gertrude Kraft	Columbus
Richard Daniel Leahy	Toledo
Seth Willis Mattingly, Jr.	Fairmont, W. Va.
Albert Kenneth Miller	Morgantown, W. Va.

\* Two degrees.



Emmett Michael O'Connor	Columbus
Janice Edith Schwartz	Cincinnati
Thurse Foster Sigman, III	Norwood
Miles Anthony Smith	Cardington
Edgar Curtis Steeves	Youngstown
Laura Farnham Stevens	Ashtabula
Harriet Louise Strang	Columbus
Margaret Work Stribling	Point Pleasant, W. Va.
Marion Lucile Voges	Akron

(Twenty-two candidates)

BACHELOR OF SCIENCE  
IN SOCIAL ADMINISTRATION

Elizabeth Custer Bacon	Lakewood
Mary Margaret Brennan	Columbus
Ruth Whitten Bryan	Columbus
Virginia Belle Cartwright	Columbus
Cora Martha Geske	Dayton
Marian Edith Hart	Madison
Jui Yun Huang	Hunan, China
Aileen Elizabeth Kennedy	Cleveland
Erma Hilda Barbara Kruse	Cleveland
Ruth Estelle Parkinson	Columbus
Mary Caroline Rodenfels	Columbus
Jane Lewis Searles	Columbus
Martha Barbara Stenberg	Cleveland
Evelyn Harriet Stone	Columbus
Belle Sarita Suid	Cleveland
Alice Louise Toops	Orient

(Sixteen candidates)

COLLEGE OF DENTISTRY

Dean: HARRY M. SEMANS

DOCTOR OF DENTAL SURGERY

Renwick Glenn Adams	Kimbolton
Myer Alpern	East Liverpool
Morris Aronowsky	Cleveland
Robert Louis Bishop	Batavia
William Wallace Boggess, A.B. (University of Kentucky)	Cleveland
Dean Maxwell Boucher	Bryan
Ambrose Claude Bowers	New Philadelphia
Arlyn Omer Brooke	Peebles
Donald Howard Brown	West Union
Joseph Bilican Bruno	Cleveland
Willis Frederick Buckley	Marietta
Robert Martin Caldwell	Jacobsburg
Bernice Julius Cehrs	Clarington
Milton Cohen	New York, N. Y.
Harold Kaho Crow	Cumberland
Waldron William Franklin	Columbus
Chester William Frickman	Mansfield
Raymond Mast Geis	Dalton
Orla Jackson Gruner	Defiance
Maurice Robert Handler	Cleveland
Burdette Holmes	New Vienna
Kolman Charles Horvath	Lorain
Sylvester Michael Hunzicker	Columbus
Jack Harvey Jaffe	Cleveland
William Wesley Jenkins	Wheelersburg
Lawrence James Jones	Youngstown
John Gardner Jordan	Columbus

George Landon Kidd .....	Columbus
Floyd Clayton Kloepper .....	Cleveland Heights
Ted Sullivan Knechtly .....	Lockland
Harry Bernard Krichman .....	Cleveland
Charles Russell Lieberman .....	Columbus
Paul Gilbert McCleary .....	Cambridge
Walter Austin Merriman .....	Hartford
George Lehman Morr, B.A. ....	Ashland
Frank Louis Mramor .....	Lorain
Charles Albert Newsome .....	Ashland
Frank Benson Rasor .....	Columbus
Lamar Smith Reynard .....	Columbus
Charles Joseph Roenker .....	Linden Heights
James Lee Rossel .....	East Cleveland
Joseph Roth .....	Cleveland
Maurice Maxwell Sandrock .....	Elyria
George Andrew Schneider .....	Logan
Robert Heaume Secrest .....	Cambridge
Isaac Shamansky .....	Nelsonville
John Dee Sherrer .....	Marion
Charles Frederick Shirike .....	Cincinnati
Roy Herbert Smith .....	Delaware
Harley Eugene Stone .....	Logan
Walter Myron Studer, A.B. (Bluffton College) .....	Apple Creek
Isadore Marvin Tucker .....	Cleveland
Edmund Harold Van Dervort .....	Columbus
Benjamin Earl Walter .....	Massillon
George Martin Wedell .....	Berea
Leson Alviere Wiley .....	Coldwater
Charles Edgar Williams .....	Columbus
Chester Mitchell Winter .....	Steubenville

(Fifty-eight candidates)

## COLLEGE OF EDUCATION

Dean: GEORGE FREDERICK ARPS

BACHELOR OF SCIENCE  
IN EDUCATION

Ella Lauretta Ackerman .....	Columbus
*Bernice Viola Aduddell .....	Columbus
Reba Elma Agner .....	Hilliards
John Raymond Alban .....	Columbus
Naomi Mae Allenbaugh .....	Columbus
Robert Emerson Anderson .....	West Mansfield
*Jeanette Archer .....	Columbus
Eleanor Marguerite Armour .....	Welch, W. Va.
William Henry Atkinson .....	Cincinnati
Robert Asbury Aughinbaugh .....	Columbus
Catherine Laura Auxter .....	Lindsey
Ethel May Baker .....	Carrollton
George Herbert Baker .....	Columbus
Cora Ella Ballenger .....	Columbus
Dorothy Wilda Bauer .....	Columbus
Elinor Mildred Bayer .....	Columbus
Vera Naomi Baymiller .....	Toledo
Alvin Leonard Bechtel .....	Sandusky
Dorothy Elizabeth Becker .....	Columbus
Erma Mae Bell .....	Sandusky
Cleo Lucille Bennett .....	Columbus
Fred H. Beyer .....	Thornville
Marjorie Biddle .....	Columbus
Olga Sarah Bierbaum .....	St. Marys
Muriel Auvergne Blair .....	Columbus



Gertrude DeWitt Bliss	Bloomville
Doris Elizabeth Blue	Columbus
Blanche Belle Boardman	Mattapoisett, Mass.
Eleanor Bode	Columbus
Flora Belle Bolin	Columbus
Georgia West Bonner	Portsmouth
Lulu Mary Bowe	Chagrin Falls
James Crawford Bower	Groveport
Helen Louise Bowman	Petersburg, Va.
Nellmarie Breitenstein	St. Clairsville
Gladys Brintlinger	Galena
Beulah Grace Brown	Conneaut
Carrie Esther Brown	Moxahala
Alice St. Marie Brunner	Genoa
Harvey Ovolo Burger	Columbus
Dorothy Ann Burgoon	Junction City
Forest Reid Butler	Columbus
Dorothy Irene Byrd	Toronto
Elizabeth Caldwell, A.B. (Western College for Women)	Chillicothe
*Marguerite Ellen Carlin	Columbus
Donna Lucile Chapman	Hartford
Cora Ellen Chase	Columbus
Charlotte Edna Clark	Cleveland
Helen Lois Clemens	Coshocton
Edna Elizabeth Clouse	East Liverpool
Roy Burnett Clymer	Mt. Cory
Charles Byron Coffee	Salem
Velma Coy	Toledo
Marianne Cresap Cramer	Columbus
Dorothy Louise Cryder	Columbus
Betty Mechem Cunningham	Nelsonville
Katherine Ellen Curran	Sistersville, W. Va.
Grace Margene Cutler	Millbury
John Henry Davis	Columbus
Harold Hartle Deeter	Columbus
Clara Ruth Denman	Waldo
Phyllis Glenn Devine	Uhrichsville
Esther Irene Dining	Sandusky
Mary Margaret Dodd	Columbus
Katherine Mary Doerr	Portsmouth
Martha Dunavent	Columbus
Nellie March Dunham	Versailles
Inez Cecelia Durbin	Danville
Georgia Adelaide Earhart	Columbus
*Ora Alice Easterday	Canton
Mary B. Elconin	Cleveland
Ruby Pearl Elzy	Corinth, Miss.
Elizabeth Marian Engle	Dayton
Martin Walker Essex	Ray
Vernon Clair Everitt	New Lexington
Mary Abry Ewan	Edon
Ruth Ann Fierst	Cleveland
Carl Talmadge Flack	Bloomville
Vivian Eloise Ford	Seville
Edward Harold Fournier	Cleveland
Margaret Kaye Fox	Chillicothe
Martha Ann Francis	Columbus
Harold Curtis Freshwater	Ostrander
Leah Powers Freshwater	Ashley
*Mildred Dolores Freshwater	Columbus
Dorothy Louise Fry	Norwalk
Edna Charles Fuller	Columbus

\* Two degrees.

Helen Vivian Geesling.....	Columbus
Milton B. Geissman.....	Warren
*Marie Wilhelmina Geske.....	Dayton
Ralph Nelson Gibbs.....	Groveport
Oliver Henry Gibson.....	Columbus
Irma Viola Giesen.....	Cincinnati
Burvil Holmes Glenn.....	Columbus
Margaret Mary Gordon.....	Columbus
Pauline Emily Grabe.....	Port Allegany, Pa.
Betty Stark Greene.....	Madison
Lois Gregory.....	Moweaqua, Ill.
Lydia Katherine Habib.....	Toledo
Ruth Catherine Hachtel.....	Dundee
Mary Frances Haggerty.....	Hillaboro
Esther Mollie Halberstein.....	Sidney
Henriette Sonya Handel.....	Dayton
*Claude Theodore Hathaway.....	Springfield
Doris Faye Hayes.....	Carrollton
*Mabel S. Herd.....	East Liberty
Frances Clementine Hirschman.....	Ashland, Ky.
Gertrude Catherine Hocker.....	Galion
Emily Ong Houston.....	Columbus
Alice Louise Hughes.....	Columbus
Nova Jean Hutchinson.....	Cleveland
Edith Agnes Ide.....	Columbus
Lillian Gertrude Johnson.....	Stryker
Dilys Elizabeth Jones.....	Venedocia
Hollyse Rachel Jones.....	Elyria
Sarah Bauder Jones.....	Delaware
Belle Virginia Joseph.....	Lemoyne
Bessie Emma Joseph.....	Lemoyne
Harry Franklin Kenworthy.....	Warren
Arden Amos Kidwell.....	Hilliards
Gertrude Kienzle.....	Toledo
Evangeline Ruth Klepinger.....	Dayton
Gerda Marianne Kmentt.....	Youngstown
Angela Marie Knechtges.....	Grafton
Mary Elizabeth Korn.....	Bucyrus
Dorothy Elizabeth Krepps.....	Columbus
Elizabeth Adeline Lamb.....	Columbus
Vivian May Lamb.....	Commercial Point
George Honnold Lemon.....	Logan
Dorothea Ann Lewis.....	Columbus
Helen Olelia Liggett.....	Ostrander
Mary Elma Liming.....	Bethel
Charlotte May Lingo.....	Columbus
Henrietta Fay Lipshultz.....	Cleveland
Dorothy Christine Loewel.....	Columbus
Mildred Ione Loudenslager.....	Marion
*Erma Amelia Lowrey.....	Chillicothe
Jennie Mildred Lust.....	Marion
Eleanor Elila Luthard.....	Cleveland
Margaret Elizabeth Mahaffey.....	Mt. Vernon
Jessie Ruth Malden.....	McConnelsville
Helen Maretta Marlow.....	Canton
Elva Irene Marsh.....	Dayton
George Washington Martin.....	Lancaster
Maurice James Martin.....	Kinsman
Dorothy Evelyn Mason.....	Columbus
Rose Josephine McCarthy.....	Findlay
Marquise Wanda McCleery.....	Columbus
Mary Grace McKinley.....	Columbus

\* Two degrees.



Andrew Meissner .....	Neffs
Elizabeth Gertrude Miller.....	Columbus
Marjorie Inez Miller.....	Dayton
Myron Brandon Miller.....	Lockbourne
John Nelson Milnes.....	Struthers
Amelia Grace Mitchell.....	Columbus
Everett Irwin Moak.....	Galion
George Molchan.....	Poland
Elmer Earl Morris.....	Dexter City
Marion Adelaide Morse.....	Columbus
Margaret Ellen Mullen.....	Columbus
Marian Mundhenk.....	Brookville
Alice Jeanne Myers.....	Columbus
Paul A. Noon.....	Columbus
Dwight Wilson North.....	Groveport
Sarah Lucy Nuby.....	Bellevue
Harold Allen Oliver.....	Columbus
John Edward Osgood.....	Toledo
Dorothy Rosalind Ozer.....	Cleveland Heights
Russell William Pace.....	Columbus
Florence Elizabeth Parker.....	Columbus
Marian Patten.....	Metamora
Dorothy Kathryn Payne.....	Columbus
Lydia Hull Pembroke.....	Columbus
*Ethel Louise Pence.....	Hillsboro
Margaret Rita Pendergast, B.A.....	Lakewood
Dorothy Marie Perkins.....	Plain City
Ether May Pilcher.....	Columbus
Virgil Eugene Poling.....	Tarleton
Mary Roseamonde Porter.....	Nashport
Zelda Ruth Powell.....	Columbus
Ruth Bristol Proctor.....	Columbus
Thomas Theodore Ramsey.....	Killbuck
Estelle Ratner.....	Cleveland
*Anna Jones Reaver.....	Columbus
Clarence Wernett Recse.....	Walhonding
Florence Gertrude Reichart.....	Wheeling, W. Va.
Pauline Henrietta Renz.....	Columbus
Jean Calve Reynolds.....	Columbus
Laura Leona Rhodes.....	Columbus
Jessie Luella Rhulman.....	Columbus
Evelyn Josephine Richard.....	Selma, Ala.
*Vivienne Rose Richards.....	Columbus
Maurice Lincoln Rider.....	Grove City
Helen Florence Riggs.....	Senecaville
Alice Louise Riley.....	Frazesburg
Newell Wayne Ritchey.....	St. Clairsville
Emily Gray Roche.....	Harrisville
Dorothy Lucille Rosendale.....	Bloomdale
Eleanor Angela Ryan.....	Circleville
Maxine Rita Ryan.....	Franklin, Pa.
Evelyn Avondale Sawyer.....	Groveport
Rose Miriam Schalit.....	Columbus
Paul Lincoln Scherer.....	Rocky River
Vivien Murdock Schwarz.....	Bowling Green
Alice Mae Seip.....	Columbus
Louis Blue Shapiro.....	Cleveland
Henry Johnson Sheets.....	South Vienna
Georgianna Josephine Sherbourne.....	Delaware
Ruth Alice Siebert.....	Columbus
Ruth Ann Silbaugh, B.A.....	Ashville
Evelyn Lela Simmons.....	Fredericktown

\* Two degrees.

Dorothy Elizabeth Smith.....	Hollywood, Cal.
Martha Whipple Smith.....	East Chicago, Ind.
Mary Ethel Smith.....	Hamilton
Grace Kathryn Snider.....	Etna
Mary Wilma Snider.....	Plain City
Jessie Stephen.....	Delaware
Virginia Stevens.....	Columbus
Gertrude Martha Stienecker.....	New Knoxville
Ruth Jane Storey.....	Gahanna
Marion Lehne Strickling.....	Columbus
Frances Strouthers.....	Columbus
Martha Louise Stuart.....	Columbus
Gwendolyn Edith Stump.....	Erie, Pa.
Gladys Leone Swartz.....	Pemberville
Helen Elizabeth Swinehart.....	Thornville
Anna Isabel Swope.....	Evansville, Ind.
James David Teller.....	Miami, Fla.
Ruth Naomi Terry.....	Columbus
Nina Belle Thompson.....	Columbus
Samuel Eugene Umans.....	Cleveland
Willard Arnold Van Nest, B.A. (University of Michigan).....	Toledo
John Arthur Vaughn.....	Andover
Christine Elizabeth Vince.....	East Columbus
Beatrice Thelma Vorhees.....	Columbus
Rosemary Ellen Wagner.....	Cleveland
Viola Ida Walker.....	North Olmsted
Wade B. Walsh.....	Sylvania
Kenneth Robert Webb.....	Sebring
Helen Frances Weisent.....	Newark
Lillian Wyoma Welker.....	Toledo
Cathryn Elizabeth Wells.....	Columbus
Elma Aurelia Whitney.....	Columbus
Evelyn Ann Wilder.....	Niles
Ruth Esther Wilkins.....	Columbus
Edith Norman Williams.....	Columbus
Henrietta Frances Wilson.....	Chillicothe
Katherine Elizabeth Wilson.....	Columbus
Katherine Izora Wollam.....	Columbus
Martha Anderson Woodrow.....	Raymond
Earnest Madison Wright.....	Columbus
Miris Daniel Wright.....	Columbus
Marjorie Lucille Wucher.....	Columbus
Hazel Bernece Wyant.....	Portsmouth
Barbara Rebecca Yauger.....	New Lexington
Robert Townsend Youmans.....	Girard
*Cecilia Helen Zarembski.....	Toledo
*Clara Margaret Zettler.....	Columbus
Elda Augusta Zurcher.....	Wilmot

(Two hundred and fifty-nine candidates)

#### BACHELOR OF LANDSCAPE ARCHITECTURE

Charles Edgar Dickinson.....	Columbus
Melvin Carroll Josephson.....	Cleveland
Francis Allen Miller.....	Shelby
Lawrence Free Murray.....	Wauseon
Edgar Paul Shisler.....	Beach City

(Five candidates)

\* Two degrees.



## COLLEGE OF ENGINEERING

Dean: EMBURY A. HITCHCOCK

## PROFESSIONAL ENGINEERING DEGREES

## CERAMIC ENGINEER

Hilton Lowry Longenecker, Cer. E. 1911.....	Wilson, N. C.
Wolsey Garnet Worcester, Cert. in Cer. 1899.....	Saskatoon, Sask., Can.

(Two candidates)

## ELECTRICAL ENGINEER

Henry Herrick Abbott, B.E.E. 1923.....	New York, N. Y.
Harold Edward Cobb, B.E.E. 1923.....	Wilkinsburg, Pa.
Edward Francis Ferguson, B.E.E. 1923; M.Sc. 1925.....	Columbus
Gerald L. Hoddy, B.E.E. 1925.....	Cleveland
Charles Earl Weitz, B.E.E. 1919.....	Cleveland

(Five candidates)

## MECHANICAL ENGINEER

Ralph L. Boyer, B.M.E. 1924.....	Grove City, Pa.
Robert Thomas Sawyer, B.E.E. 1923.....	Columbus

(Two candidates)

## ENGINEER OF MINES

Foster LaClair Apple, B.E.M. 1923.....	Stone, Ky.
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(One candidate)

## BACHELOR OF ARCHITECTURE

India Boyer.....	Sidney
Arthur Horace Carter, B.Sc. in Agr. (as of the Class of 1925).....	Lafayette, Ind.
George Benton Dale.....	Cleveland
Fayne Feibel Freshwater.....	Columbus
Ralph Herbert Harman.....	New Carlisle
Clifford Walter MacCoy.....	Toledo
Carl Eugene Meinhardt.....	Columbus
Fred Paul Parris.....	Clendenin, W. Va.
Frank Monroe Van Auken.....	Sunbury
Paul Scott Yeagley.....	Columbus

(Ten candidates)

## BACHELOR OF ARCHITECTURAL ENGINEERING

William Robert Beasley.....	Columbus
John Henry Clarke.....	Youngstown
Webster J. Cottier.....	Cleveland
William Starr Gould.....	Toronto
Clifford William Kiracofe.....	Fort Wayne, Ind.
Robert Malcolm Leece.....	Cleveland
Frederick Herman Multer.....	Portsmouth
William Dean Musselman.....	Orrville

(Eight candidates)

## BACHELOR OF CERAMIC ENGINEERING

James Robert Beam.....	Bucyrus
Edward Earl Callinan.....	Columbus
Warren Franklin Copp.....	West Alexandria
James Abram Cross.....	Columbus
Arthur Dorward Drake.....	Columbus
Walter David Ford.....	Columbus
Charles William Gerster.....	Bucyrus
John Franklin Hunt.....	Columbus
Glenn Arden Hutt.....	Chillicothe

Richard Oscar Lane.....	Columbus
Albert Edward Lepper.....	Columbus
Cecil Edison Mansfield.....	Defiance
John Lester Moser.....	Middletown
Robert Arnold Schoenlaub.....	Columbus
Carl Schwartzwalder.....	Columbus
Edward Carl Seabright.....	Martins Ferry
Solomon Joseph Slaven.....	Columbus
Gilbert Ysidro Soler.....	Columbus
Stephen Timothy Spires.....	New Straitsville
Harry William Thiemecke.....	Pittsburgh, Pa.
George Nicholas Tuttle.....	Columbus
Charles Edward Webster.....	Springfield
Norman George Wedemeyer.....	Columbus

(Twenty-three-candidates)

## BACHELOR OF CHEMICAL ENGINEERING

Philip Joseph Bornhorst.....	St. Marys
Howard Edward Brooks.....	Columbus
Edward John Cannon.....	Painesville
Edwin Bertrand Carr.....	Tiffin
Howard Gilbert Cooper.....	Marion
Parker Southerland Dunn.....	Portsmouth
Charles Leonard Fletcher.....	Columbus
Harold Lehr Hamilton.....	Lima
John James Hazel.....	Findlay
Dean DeWitt Huffman.....	Ada
William Peter Koontz.....	Columbus
Walter Alexander Lower.....	Columbus
Raphael John Mathias.....	Swanton
Marcellus Marion McAdams.....	Bucyrus
Homer Roland McDougal.....	North Robinson
Glendon Ivory Miller.....	Union City, Ind.
Kent Maxien Sprinkel.....	Germantown
William McIntire Tucker.....	West Union

(Eighteen candidates)

## BACHELOR OF CIVIL ENGINEERING

Joseph Franklin Barbee.....	Columbus
Harold Phillips Brooks.....	Norwalk
Charles William Buckey.....	Cambridge
Robert Burns Burket.....	Findlay
Samuel Theodore Carpenter.....	Montpelier
George James Cheney.....	Conneaut
John Rodgers Clifton.....	New Holland
John Dana Cole.....	Toledo
William Perry Cross.....	Delaware
Robert Olin Davis.....	Leesburg
Charles Oatley Dawson.....	Columbus
John Michael Dzuro.....	Martins Ferry
Orison Herdman Jeffers.....	Chilo
Emmett Herman Karrer.....	Dublin
Kenath Austin Kettle.....	Lakewood
Robert Frederick Koerner.....	Columbus
John Edwin Lynn.....	East Cleveland
Ralph Elton Mumma.....	Cleveland
Raymond Henry Newton Murray.....	Clarence, N. Y.
Arthur James Nelson Truelson.....	Conneaut
George Frank Westinghouse.....	Columbus
Robert Theodore Ziegfeld.....	Columbus

(Twenty-two candidates)



## BACHELOR OF ELECTRICAL ENGINEERING

John Arne Apuli.....	Mountain Iron, Minn.
*Carl Frederick Bayer.....	Columbus
*Richard Miller Beer.....	Columbus
Richard Albert Bell.....	Toledo
Herman Todd Carter.....	Zanesville
John Wallace Cherry, Jr.....	Columbus
Charles Albert Cook.....	Wheeling, W. Va.
John Daniel Corley.....	Columbus
Aldo Edgar Crisante.....	Mingo Junction
*John Josiah Daggon.....	Columbus
Francis William Davis.....	Warren
John William Evans.....	Columbus
William Scott Franklin.....	Columbus
Charles Edmund Friesell.....	Pittsburgh, Pa.
Emerson Wilson Garling.....	Lewistown
Fred William Gilchrist.....	Toledo
James Austin Hale.....	Mogadore
Herman Richard Heil.....	Columbus
Frank Stephen Himebrook.....	Columbus
Joseph Stanley Hoddy.....	Columbus
Harold Raymond Jagusch.....	Elyria
Floyd Logan Kemper.....	Columbus
Floyd Merlin Kinney.....	Columbus
*Arthur Robert Knight.....	Delaware
Theodore Andrew Koch.....	Columbus
Stanley Judd Lough.....	Moscow
William Joseph Morlock.....	Elyria
Robert Charles Moser.....	Columbus
Lester Clinton North.....	Canal Winchester
*Gordon Edmonds Randall.....	Columbus
Peter Andrew Rasmus.....	Ashtabula Harbor
Millard Rosenfeld.....	Columbus
Arthur Amos Schuenemann.....	Cleveland
Harold Daniel Siler.....	Columbus
Charles Godfrey Smith.....	Peoria
Vinton Gilbert Sprague.....	New London
Elwood Milton Stanbery.....	Deavertown
Shigeo Takemoto.....	Wailuku, Hawaii
Richard Kenneth Turner.....	Toledo
Charles Ray Wagner.....	Arcanum
Karl Yenrick.....	Lancaster

(Forty-one candidates)

## BACHELOR OF ENGINEERING IN MINING

Charles Ernest Tibbals.....	Columbus
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(One candidate)

## BACHELOR OF ENGINEERING PHYSICS

Floyd Williams Bell.....	Columbus
Waldo Perrin Simpson.....	Bellevue
Foster Merrill Stephens.....	Columbus

(Three candidates)

## BACHELOR OF INDUSTRIAL ENGINEERING

Howard William Allison.....	Delaware
Charles Edward Beard.....	Nelsonville
Robert Judson Bedell.....	West Liberty
Myron English Bollerer.....	Gallion
Carl Melvin Borchers.....	Vandalia

\* Two degrees.

Harlan Orlando Cunningham.....	Oakwood
Robert John Duerler.....	Columbus
Leonard Watson Dugan.....	Columbus
Ernest Fuller.....	Warren
Walter Arthur Galloway.....	Xenia
Charles Franklin Garman.....	Akron
Carl Harry Habel.....	Delta
Edwin Alan Heffner.....	Columbus
Samuel Lockshin.....	Youngstown
Russell William Martin.....	Middletown
Willard Harley McQuilkin.....	Canton
Frederick Eugene Moran.....	Wooster
Max Williams Morrow.....	Wellston
Alan Edward Rathbun.....	Green Springs
John Earnest Riker.....	Columbus
Howard McCoy Scott.....	Marietta
William Henry Shupe.....	Columbus
Mark Jackson Sturtevant.....	Columbus
Alton Colman Tripp.....	Metamora

(Twenty-four candidates)

## BACHELOR OF MECHANICAL ENGINEERING

*Carl Frederick Bayer.....	Columbus
Samuel Brailovsky.....	Columbus
Harry Theodore Buchs.....	Kipton
Ward Earl Conrad.....	Wooster
*John Josiah Daggon.....	Columbus
Harold Ingram Gall.....	Hammondsville
Hayward Andrews Gay.....	Worthington
Jack Edward Gickler.....	Columbus
William James Grubbs, Jr.....	Columbus
Roy Steele Hanna.....	Smithville
Glen Harrison Hurd.....	Elyria
John Wesley Jordan, Jr.....	Howard
Charles Murfin Kitson.....	Ashtabula
Arthur Clarence Koenig.....	St. Marys
Roy Warren Kurtz.....	Smithville
Paul Roger Lynn.....	Columbus
Salvatore Micheal Marco.....	Cleveland
Herman Roger Michener.....	Columbus
Wallace Savillian Payn.....	Lodi
Grant Arthur Pettit.....	Corry, Pa.
*Gordon Edmonds Randall.....	Columbus
Paul Frederick Henry Reichert.....	Toledo
Russell James Ries.....	Barberton
Willard Allen Schumacher.....	Marblehead
Jack Fillmore Shannon.....	Bellevue
Paul Andrew Springer.....	Columbus
Hubert George Stallkamp.....	Delphos
Joseph Martin Stelzer.....	Columbus

(Twenty-eight candidates)

## BACHELOR OF METALLURGICAL ENGINEERING

Warren William Ballantine.....	Marion
Edward Wasson Burd, Jr., B.A.....	Martins Ferry
Clarence William Fabel.....	Canton
Frederick John Greenwich.....	Bucyrus
Henry George Holtz, B.S. (Wilmington College).....	Wilmington
Raymond Henry Myers.....	Toledo
Edwin Joyce Rogers.....	Portsmouth
Harold Raymond Ryan.....	Elyria

(Eight candidates)

\* Two degrees.



BACHELOR OF SCIENCE  
IN APPLIED OPTICS

Nelson Edward Abrahamsen.....	Cleveland
Nicholas Edward Harris.....	Columbus
Hammond Spalding Horton.....	Lakewood
Earle Martin Voegtly.....	Hanibal
James Edwin Wilhelm.....	Portsmouth
(Five candidates)	

## COLLEGE OF LAW

Dean: HERSCHEL WHITFIELD ARANT

## JURIS DOCTOR

Samuel Freifield, B.A. ....	Steubenville
Alfred Wolf Gans, B.A. ....	Dayton
Grace Fern Heck, B.A. ....	St. Paris
Mark Albert Loofbourrow, B.Sc. in Jour. ....	Columbus
Ernestine Gertrude Wampler, B.A. ....	Dayton
Alton Revoe Wells, A.B. (Municipal University of Akron) ....	Akron
(Six candidates)	

## BACHELOR OF LAWS

Harry Edwin Adamson .....	Columbus
Samuel Sanford Aidlin, B.A. ....	Cleveland
Robert Leroy Barton .....	Columbus
Lawrence Lester Baver .....	Miamisburg
Malcolm Knight Benadum .....	Columbus
Earl Lloyd Beougher, B.A. ....	Columbus
Thomas Spencer Bretherton .....	Toledo
Clarence Buckenmyer, B.A. ....	Toledo
Frederick Capobianco .....	Columbus
Floyd Arthur Coller, A.B. (Bethany College) .....	Bowling Green
Thomas Edwin Crance .....	Ironton
Wendland Crucey .....	Holgate
Alfred Michael Davis .....	Columbus
William Kay Davis .....	Marion
Melville Reese Dill .....	Lakewood
Rolland Wilson Dings .....	Toledo
Charles Elmer Fiddler, A.B. (Ohio University) .....	New Boston
Maxwell William Flesher .....	Huntington, W. Va.
Stephen Garasky .....	Youngstown
Morris Louis Gelman .....	Toledo
Charles Emory Glander, B.A. ....	West Alexandria
John Edward Gregg .....	Waverly
John Benjamin Hill, B.A. (Ohio Wesleyan University) .....	Columbus
Max Winfield Johnstone .....	Lewistown
Paul Thomas Key, B.A. (Ohio Wesleyan University) .....	Columbus
Raymond Warren Kilbourne .....	Columbus
Ernest William Kruse .....	Dayton
Leland Lathrop Lord .....	Columbus
Samuel Luper .....	Columbus
Howard Schoryers Lutz .....	Nankin
Lloyd Devere Miller, B.A. ....	Bryan
Thomas Monger .....	Columbus
Joseph Johnson Poorman, B.A. (Muskingum College) .....	Bellaire
Robert Andrew Prince .....	Piqua
John Haynes Ranz, B.A. (Capital University) .....	Youngstown
*Lester Sheldon Reid .....	Duval
Samuel Solomon Rosenthal, B.Sc. in Bus. Adm. ....	Columbus
George Albert Schwer .....	Sandusky
Wilbur Lewis Shull .....	Gahanna

\* Two degrees.

Edward Morton Shulman .....	Dayton
Paul Henry Taylor .....	Martins Ferry
Edward Charles Thompson .....	Bellefontaine
Hyman Sidney Topper .....	Toledo
Donald Curtis Turnbull, B.A. ....	Pomeroy
Frank Juillard Warren .....	Stryker
Charles Myer Zerkowitz, A.B. (Cornell University) .....	Columbus
(Forty-six candidates)	

## COLLEGE OF MEDICINE

Dean: JOHN H. J. UPHAM

## DOCTOR OF MEDICINE

Myron Donald Bartholomew, B.A. ....	Marion
Emerson Millen Blake .....	Columbus
Margaret Louise Brooks, B.A. ....	McConnelsville
Ray Brown, B.A. ....	Columbus
Floyd William Craig .....	Coshocton
Josephine Koob Diron .....	Cleveland
Paul Strimple Fancher, B.A. (Ohio Wesleyan University) .....	Lodi
John Joseph Ferfolia .....	Cleveland
George William Fetzer, B.A. ....	Cleveland
Milton Leonard Goodman .....	Columbus
David Samuel Greenberg, B.A. ....	Steubenville
Samuel Lester Greenberg, B.A. ....	Steubenville
Paul Croskey Grove, B.Sc. ....	Cadiz
Kenneth Gilbert Hawver, A.B. (Miami University) .....	Jackson Center
Joseph Newton Hebble .....	Springfield
Clarence William Hullinger, B.A. ....	Springfield
George Boltis Imhoff, B.S. (Denison University) .....	Wooster
Bernard Edmund Ingmire .....	Union Furnace
Lawrence Neff Irvin, B.A. ....	Columbus
Julius Aaron Katzive .....	Steubenville
Alexander Henry Kimmel .....	Anna
Ruth Alice Koons, B.A. ....	Columbus
Cornelius Charles Landen, B.Sc. ....	Columbus
Timothy Lehmann, Jr., B.A. ....	Columbus
Hyman Levy .....	Cleveland
John Marsico .....	Elyria
Howard Dillon Maxwell, B.Sc. ....	Alliance
Donald Samuel McDill, B.S. (Muskingum College) .....	Cambridge
Wilbur Eilers McKee .....	Monclova
Joseph Hamilton McNinch, B.A. ....	Columbus
Lawrence Brooks Mehl .....	Massillon
Roy Marion Meredith, B.Sc. ....	Columbus
Nicholas Michael, B.S. (West Virginia University) .....	Weirton, W. Va.
Delbert A. Minder .....	Bellaire
James Kenneth Nealon, B.S. (University of Pittsburgh) .....	Columbus
Leonard Jackson Newell, B.S. (Otterbein College) .....	Columbus
*Ralph Clifton Paisley .....	Old Washington
Beatrice Lucille Postle, B.A. ....	Columbus
Charles Richard Price .....	Dayton
Robert Earl Pumphrey, B.A. ....	Clayton
Thomas Edwin Rardin, B.Sc. ....	Columbus
Elmer Julius Rodenberg .....	Cincinnati
George Ira Scheetz, B.Sc. ....	Coshocton
Roy Ellis Shell, B.S. (Capital University) .....	Columbus
Chester Coleman Shinbach, B.Sc. ....	Toledo
Kenneth Franklin Smith .....	Bryan
Francis Marion Stephens, B.Sc. ....	Cincinnati
Ernest Marvin Tapp, Jr., B.A. ....	West Mansfield
*Kenneth Wolf Taylor .....	Pickerington

\* Two degrees.



Cleland Barker Thomas, B.A. ....	Cleveland
Graydon Dale Underwood, B.A. ....	Massillon
Harold Cleon Weisenbarger, B.S. (Denison University) .....	Greenville
Franklin Priest Wherry, B.A. ....	East Liverpool
Daniel Jacob Whitacre .....	Weston
Vernon Burton Wood .....	Aid
William Griffith Workman, B.S. (The College of Wooster) .....	Beallsville
John Alfred Yochem .....	Sandusky

(Fifty-seven candidates)

## COLLEGE OF PHARMACY

Dean: CLAIRE ALBERT DYE

BACHELOR OF SCIENCE  
IN PHARMACY

Irwin George Bittikofer .....	New Washington
Pauline Bloom .....	Columbus
Estelle Danese Essex .....	Columbus
Robert Clark Giffen, B.S. (Muskingum College) .....	Columbus
John Theodore Goorley .....	Galion
Sigmundt Aloysius Hermann .....	Mobile, Ala.
Jeannette Eileen Hewetson .....	Columbus
Edwin Frank Hoffman .....	Mansfield
Robert Hoffman .....	Columbus
Gwilym Hopkins .....	Canton
Robert Charles Innis .....	Columbus
Reinhold Jeske .....	Youngstown
Robert Sherman Justice .....	Columbus
David Komisarow .....	Cleveland
Thomas Joseph Lolli .....	Cleveland
Harry Sigfrid Olson .....	Ashtabula
Frederick Moore Selby .....	Martins Ferry
Alfred Worthington Snider .....	Columbus
Chester Arthur Stine .....	Columbus
Mary Ann Vujnovic .....	Steubenville
Lee Henry Wellock .....	Akron
Harvey Darwin Wright .....	Johnstown
Henry John Zehnal .....	Cleveland

(Twenty-three candidates)

## COLLEGE OF VETERINARY MEDICINE

Dean: OSCAR V. BRUMLEY

## DOCTOR OF VETERINARY MEDICINE

Cameron Wesley Argue .....	Grenfell, Sask., Can.
Densil Clyde Bartlett .....	Mt. Vernon
William Theodore Brinker .....	Leetonia
Charles Clarence Crago, A.B. (Oberlin College) .....	Chagrin Falls
Herbert Jacob Eichhorn .....	Edison
Oscar Bruce Gochnauer .....	Skyberg, Minn.
William Alonzo Higgins, B.S. (University of New Hampshire) .....	Littleton, N. H.
Howard Russell Hinchman .....	Canal Winchester
Ormond John Hummon .....	Leipsic
Leslie Edwin Johnson .....	Melvin, Ill.
Carroll Kirkman Mingle .....	Anderson, Ind.
Earl Neil Moore, B.Sc. in Agr. ....	Warner
John Kenneth Morrow .....	Winnipeg, Man., Can.
William Hugh Pavey .....	Sabina
Gail Winfred Robson .....	East Liberty
Charles Forest Runnels .....	Sabina
Kenneth B. Sherer .....	Fremont
Ervin Edwin Slatter .....	Fremont
William Vance Stevens .....	Mt. Vernon

Stanley Ernest Taylor .....	Chicago, Ill.
Ralph Austin Wilson .....	Sabina

(Twenty-one candidates)

## CERTIFICATE OF GRADUATE NURSE

Mary Ellen Anderson .....	Ray
Helen Emeline Armstrong .....	Hicksville
Mollie Elizabeth Badertscher .....	Dalton
Mary Thelma Balthaser .....	Plain City
Helen Florence Baum .....	Duval
Charlotte Bennitt .....	Frazeysburg
Ida Loretta Black .....	Chicago, Ill.
Zelma Louise Brundage .....	Columbus
Anna Mary Corey .....	Toms, Siberia
Harriet Elizabeth Delaplane .....	Greenville
*Ora Alice Easterday .....	Canton
Rea Bernice Fishbaugh .....	Mendon
Mary Lucille Hays .....	Clinton, Ind.
Esther Gwen Jones .....	Gallipolis
Donna Louise Kerst .....	Greenville
Ethel Elvina Kirchofer .....	Dalton
Caroline Irene Koons .....	Columbus
Daisy Olive Laird .....	Peoria
Olive Avice Marshall .....	Mt. Vernon
Margery Olive Maxwell .....	Lexington
Adrienne Ione Midlam .....	Marion
Alice Louise Miller .....	Marietta
Ruth Arvilla Mowery .....	Washington C. H.
Margaret Muth .....	Columbus
Louise Mary Ort .....	Columbus
Alice Alberta Rush, B.A. ....	Worthington
Isabel Mary Schlegel .....	Ashville
Hazel Elizabeth Seip .....	Columbus
Blanche Elizabeth Skinner .....	Washington, C. H.
Lucy Arvilla Sutton .....	Springfield
Dorothy Mary Wilder .....	Ashtabula
Mabel Irene Zulauf .....	Mt. Gilead

(Thirty-two candidates)



THE FIRST AND SECOND REPORT  
OF THE BOARD OF TRUSTEES

OHIO STATE UNIVERSITY

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